

THE EFFECTIVENESS OF A TARGETED TITLE I
PRE-KINDERGARTEN PROGRAM

A Dissertation presented to the Faculty of the Graduate School
University of Missouri

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

by
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May 2008

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PRE-KINDERGARTEN PROGRAM

Presented by Amy L. Cook

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DEDICATION

This dissertation is dedicated to my family that I love very much. I want to thank my mom and dad for always having the confidence in my abilities to accomplish my goals and providing the extra support needed during this phase of my education. To my husband, Charles, for providing me the support and stability at home while I was buried in school work. To Andrew, Sam and Wes, for your patience and endless love as mom spent so many hours either away from home or in front of the computer. As you grow, I hope you enjoy learning as much as I have.

Finally, this is for the children living in poverty. These children demonstrate the greatest strength and courage during the most challenging of hardships. They are my true teachers and I have learned so many lessons from them.

ACKNOWLEDGEMENTS

There are many people who have encouraged me as I worked to complete this doctoral program and dissertation. Appreciation is extended to all the teachers of our Cohort 5 in the state of Missouri who provided hours of teaching to transform us into strong educational leaders.

I wish to personally express my gratitude to the following individuals. Thank you to Dr. Robert Watson, my dissertation supervisor, for supporting me with your continuous positive advice and encouragement. I appreciate you for supporting our group in mid-stream and not looking back. Thank you to Dr. Cynthia MacGregor for taking on our group and extra load while we were in transition. Your kindness and support have not gone unnoticed. To Dr. Barbara Martin, who helped establish the strong academic tone of the program. Thank you for your guidance and encouragement during our fragile beginnings. A heartfelt thank you is also extended to the members of my dissertation committee: Dr. Diana Garland, Dr. Beth Hurst, Dr. Cynthia MacGregor, and Dr. Gerald Moseman. I appreciate the time you gave to help me do my best.

I would also like to thank the Cohort Five members of Missouri State University. I could not have picked a more kind and knowledgeable group to travel with down this learning path. A personal thank you to my close group Karyn, Cathy, and CJ for all those countless editing sessions, words of encouragement, and “phone a friend” calls.

Thanks to those faculty and staff members of Springfield Public Schools who supported me, provided words of encouragement, and kept me focused on the finish line. A special thank you is extended to Dr. Teresa White. I will always appreciate the seed of encouragement you planted in me to seek further knowledge.

ABSTRACT

The focus of measure for this study was on readiness of children who attended a targeted Title I pre-kindergarten class a year prior to entering kindergarten. The purpose was to investigate the achievement in the areas of motor skills, mathematical concepts, language and pre-reading skills, and an overall composite as measured by the DIAL-3. Comparisons of those children who received the intervention to those who qualified but did not participate were conducted using independent sample *t*-tests.

Of the 320 students with complete sets of data, 205 children participated in the targeted Title I intervention classroom, while 115 children were placed on a waiting list and were labeled as non-intervention. It was found, with statistical significance, the targeted Title I pre-kindergarten intervention program had a strong effect on the academic outcomes of all subgroups of all children who attended compared to children who qualified but did not attend. This significant difference included the differences between the subgroups of male, female, minority, and non-minority.

Implications from this study indicated it would benefit children of academic need living in poverty to receive pre-kindergarten intervention. Additionally, school districts should monitor academic performance prior to the NCLB required years of grades three through eight. Monitoring should include the subgroups of race and gender to determine if Title I support is needed as young as pre-kindergarten.

Future research recommended includes a larger scale research project with a larger sample of pre-kindergarteners and a longitudinal study of these children to determine longevity of effectiveness. Finally, data analysis of those children in the non-intervention group to determine what support they did receive, if any.

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CHAPTER ONE

INTRODUCTION TO THE STUDY

Background

The effects a family's income has on children seems strongest during the children's early school years, especially during preschool (Linver, Brooks-Gunn, & Kohen, 2002). Much research has been conducted to identify these effects on children who grow up in high poverty homes (Brooks-Gunn & Duncan, 1997; Dearing, McCartney, & Taylor, 2001; Hart & Risley, 1995; Horning & Rouse, 2002; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004; Payne, 2005; Reynolds & Robertson, 2003). More research is needed to discover what educational systems are doing or could be doing to effectively address these effects on children of poverty (Shaul, 2000). Brooks-Gunn and Duncan (1997) noted children from poverty homes were 1.3 times more likely to experience learning disabilities or development delays than those children not of poverty. With this deficiency so early, the children of poverty continue to be developmentally delayed as they become older (Brooks-Gunn & Duncan).

The federally funded Title I program, which was part of the Elementary and Secondary Education Act of 1965, was established to help with developmental delays of children from poverty. With Title I funding, school districts provided additional resources to accelerate those children who attended a school in a low-income neighborhood. The passage of No Child Left Behind (NCLB) in 2001, by President George W. Bush, invoked a new responsibility for leaders in the educational arena. All children were expected to be proficient in reading and mathematics by third grade or the school district would be under the penalties of the state and federal educational systems. The purpose of

the reform was to hold school districts' educational systems more accountable for all children. Prior to NCLB, the achievement scores of children of poverty were lost in unrepresentative averages. Accountability for school officials to improve these children's achievement was not present (United States Department of Education [USDE], 2004a).

Schools most affected by the NCLB Act were those where Title I funds were utilized. If the school failed to meet the expectations of academic advancement of all students, then the school, as well as the district, would receive sanctions such as the loss of Title I funds. These new demands on school districts with Title I funds necessitated leaders to reevaluate how teaching and learning were done in order to maximize the achievement of all students, regardless of the children's economic status. Yukl (2006) highlighted the need for effective leadership in order to facilitate the adaptation to changing environments, initiated by outside forces.

School officials must also determine if the use of the Title I funds were most effectively being utilized. The goal of a Title I program was to improve the academic achievements of those children of poverty while also meeting the requirements of NCLB (USDE, 2004a). There are many options for a school district in implementing Title I funds; therefore, it is necessary for leaders to make sure those funds are utilized in the most effective and efficient way possible (Patton, 1998). Because of the strong focus on student achievement in schools and the possible delays in cognitive development of these children (Brooks-Gunn & Duncan, 1997), it is imperative to study the effects a Title I intervention program had on young children.

The focus of measure for this study was on readiness of children who attended a targeted Title I pre-kindergarten class a year prior to entering kindergarten. The study

investigated the achievement in the areas of mathematical concepts, language and pre-reading skills, motor skills and an overall composite of those students. The achievement skills were measured with the Developmental Indicators for the Assessment of Learning (DIAL-3). The children's achievements in these areas are gathered prior to the intervention program. Two nonrandom groups are established. One group received intervention services, while one group qualified but did not participate. The study was conducted to determine if the children who participated made significant improvements compared to those children who did not participate.

This study contributed to the knowledge base regarding benefits of early intervention programs for children living in low-income families. The knowledge gained from this study will inform those decision-making leaders of the effectiveness of the Title I pre-kindergarten programs. As NCLB mandates greater accountability on program effectiveness, school district leaders must gather all available data to make informed decisions on what Title I programs to support. Additionally, provided from this study, a deeper inquiry could deem necessary to determine if the curriculum, instruction, and implementation are in need of examining. Finally, the evaluation results of this study could be used as a baseline for a follow-up longitudinal study of Title I preschool effectiveness.

Within this chapter an overview of the evaluation of a targeted Title I preschool program will be provided. First, a detailed description of the conceptual underpinnings will be explained. This is an evaluation of a program (Patton, 1998) meant to advance students who are behind academically prior to entering kindergarten. Next, presented in this chapter, will be the statement of the problem to be evaluated, the purpose of the study

and five research questions to be answered. Finally, the limitations and assumptions of the study are provided and key terms with definitions listed.

Conceptual Underpinnings for the Study

The effects of poverty are deep and sometimes unknown to the general population of middle and upper incomes (Linver, Brooks-Gunn, & Kohen, 2002). Children who grew up in these homes began life already at a disadvantage educationally, compared to those children of non-poor homes. Brooks-Gunn and Duncan (1997) noted family income was more strongly related to children's ability and their achievement than the children's emotional state. With this understood by educators, there was a rush to believe from school districts that if children could be placed in classrooms at an earlier age, this would overcome any deficiencies they had due to living in a poor home. Problems could arise from this rush to place children in school, when school personnel act on untested assumptions (Patton, 1998).

Preschools could be found in schools sites, day care centers, homes or religious facilities (Maeroff, 2003). Questions as to which preschools, if any, were effective programs to help support those children of high poverty homes prevailed (National Association for the Education of Young Children [NAEYC], 1995). Is it enough for children to be placed in a preschool setting for them to advance to their peers from higher income homes? With all the randomness of preschool programs, which setting is the most effective for this population of children of poverty (Irons & Harris, 2007)? If school districts only have so much money to spend on Title I interventions, should the district invest in preschool age children or allow others in the community to do this and focus attention on the school aged children (Barnett, Brown, & Shore, 2004)? In order to

address questions that arise, when discussing effectiveness of programs, a program evaluation is a solution.

Patton (1997) introduced a framework for supporting school organizations in evaluating programs to determine if those programs were effective in meeting the goals intended to be met. This program evaluation was the conceptual framework used with this study. The purpose for evaluating a targeted Title I program is “to inform decisions, clarify options, identify improvements, and provide information about programs and policies within contextual boundaries of time, place, values, and politics” (Patton, p. 24). Farran and Son-Yarrough (2001) warned pre-kindergarten programs are being embraced more on the notion that low income children’s cognitive development must certainly improve with more time in school. Patton (1997) explained a program must not be judged effective solely on charitable or philanthropic motives. A more legitimate basis for effectiveness of a program when it was evaluated with systematically collected data (Patton).

Outlined by Patton (1997) was a three-component definition, explaining an efficient program evaluation. First, the collection of data was systematic in nature. Secondly, within the evaluation process, a variety of concepts or topics were tested. This allowed a bigger picture of the program’s effectiveness. Finally, Patton included the notion that an evaluation of a program should have more than one reason for uses of the information obtained. Uses for the information could include goal attainment, unanticipated consequences or any long-term impacts of the program (Patton).

The challenge, to school districts and communities, was to determine what combination for intervention would work overcome children’s problems associated with

poverty. Wasik, Bond and Hindman (2002) emphasized the quality of intervention played a significant role in the effectiveness of a preschool intervention program. Yet, “increasing the amount of time disadvantaged children spend in early intervention programs without addressing the content of the intervention is a one-dimensional solution to a complex problem” (Wasik et al., p. 89).

This study utilized the program evaluation framework of Patton (1998) to evaluate a targeted Title I pre-kindergarten program. The focus of the evaluation was to determine if goals for improving children’s cognitive development occurred with the program. All three components outlined by Patton were followed in order to conclude effectiveness of the pre-kindergarten program. The possible judgments and uses for the information that were drawn from the evaluation were provided in more detail in later chapters.

Statement of the Problem

While there was extensive research on the effectiveness of some pre-kindergarten programs such as Head Start (Barnett et al., 2004; Barnett & Yarosz, 2007; Gill, 2007; Irons & Harris, 2007; LoCasale-Crouch et al., 2007; Maeroff, 2003; Reynolds, 1995; Wasik et al., 2002). Not as much has been written on the effectiveness of targeted Title I pre-kindergarten programs (Shaul, 2000; LoCasale-Crouch et al., 2007; Wong & Nicotera, 2004). As part of a study in 2000, the United States General Accounting Office was commissioned by the Committee on Governmental Affairs of the United States Senate to determine the effectiveness of Title I programs in preparing children for kindergarten (Shaul, 2000). The Department of General Accounting Office is a component of the Department of Education. At the time of the study in 2000, the

Department of Education announced research could not be found to support the effectiveness of preschool Title I programs on school readiness (Shaul, 2000). The committee emphasized, since Title I was growing and becoming a more significant federal investment, it was imperative to determine the effects of this program. A recommendation, by the committee, stated the need to gather information on effectiveness of Title I preschool programs through a comparison study of children who do receive services to those who do not (Shaul, 2001). Since this announcement from the United States Department of Education other researchers have also announced the need for further research into the effectiveness of Title I preschool (Farran & Son-Yarborough, 2001; LoCasale-Crouch et al., 2007; Wong & Nicotera, 2004).

Due to the growing trend of school districts implementing pre-kindergarten, researchers emphasized a need for additional investigations as to the effectiveness of these programs. Farran and Son-Yarborough (2001) warned of the danger of rushing too quickly into implementations of a preschool program, due to popularity, without an evaluation of all components of that program. LoCasale-Crouch et al. (2007) concluded, “Given that state-funded pre-kindergarten programs are designed to better prepare at-risk children for school, this significant association between classroom quality and concentration of poverty warrants further exploration” (p. 14). Aligned with LoCasale-Crouch et al., Wong and Nicotera (2004) expressed the importance of comparing Title I student academic achievement with those non-Title I students especially during the beginning program years.

The demands on school districts caused those districts to become creative in an attempt to advance children’s learning, especially those children from high poverty

neighborhoods (Farran & Son-Yarbough, 2001). Therefore, Barnett and Yarosz (2007) called for further research from those involved in pre-kindergarten programs to ensure effectiveness of these programs. It is important to note, due to the nature of Title I and the requirement to serve the children of greatest need, based on multi-criteria, it is not feasible to conduct research through randomized selection of the children (Borman, 2000). With that stated, it was worthwhile to continue to investigate the effectiveness of the Title I programs because this could continue the evolution and improvements of the Title I initiatives (Borman).

Purpose of the Study

The purpose of this study was to determine if a targeted Title I pre-kindergarten program advanced the children's academic achievement as compared with those children who qualified but did not participate in the program. A quasi-experimental design was chosen to explore the cause and effect design of a school-based targeted Title program (Patten, 2000). Two non-random groups of children were chosen. As suggested by the Committee on Governmental Affairs (Shaul, 2001), research needed to be conducted in order to determine the effects on children's performance. Shaul continued by suggesting an impact evaluation study be done by comparing "those receiving program services and a similar group not receiving program services. Researchers compare the relevant outcomes, such as reading ability, of these two groups of children to determine the program's effect" (p. 9).

Following the recommendations of researchers (Barnett & Yarosz, 2007; Borman, 2000; Farran & Son-Yarbough, 2001; Shaul, 2001; Wong & Nicotera, 2004), to conduct additional research on the impact Title I had on pre-kindergarten children, a quasi-

experimental evaluation was conducted. A comparison of children who participated in a school-based targeted Title I pre-kindergarten program with those who qualified but did not attend the program, was conducted. The purpose was to determine the effectiveness of the Title I program in advancing children academically. A program evaluation of a targeted Title I program was utilized (Patton, 1998). The following were five research questions to be answered with this study. In addition to the questions, limitations and assumptions are addressed.

Research Questions

Within the context of this study, the following research questions were addressed:

1. Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between students who have received targeted Title I pre-kindergarten services and those children who qualified for the program but did not receive the services?
2. Is there a significant difference in academic achievement in the areas of motor, concepts, language or overall composite between male students who have received targeted Title I pre-kindergarten services and those male children who qualified for the program but did not receive the services?
3. Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between female students who have received targeted Title I pre-kindergarten services and those female children who qualified for the program but did not receive the services?
4. Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between minority students who have

received targeted Title I pre-kindergarten services and those minority children who qualified for the program but did not receive the services?

5. Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between non-minority students who have received targeted Title I pre-kindergarten services and those non-minority children who qualified for the program but did not receive the services?

Limitations and Assumptions

Limitations

Within the context of this study, the following were noted limitations:

1. The only instrument used to collect data was the DIAL-3. This is pre-existing archival data that was not monitored by the researcher as to how the assessment was conducted and data gathered.
2. The selection of children was determined based on the parents' desire for their children to attend the program. Thus, due to the self selection into the groups of either participating or not, the study was limited to a quasi-experimental study.

Assumptions

Within the context of this study, the following were noted assumptions:

1. The DIAL-3 was administered in similar environments with similar testing conditions.
2. The administration of the assessment was by a highly trained educator following consistent procedures.
3. During the intervention period all students attended classrooms led by certificated teachers who were highly qualified as defined by No Child Left Behind Act.

4. The targeted pre-kindergarten Title I program consisted of all the components to be considered a high-quality Title I program as defined by Missouri Department of Elementary and Secondary Education.

Definition of Key Terms

The following terms and definition of each were provided to allow the reader a clearer understanding of the study.

Adequate Yearly Progress (AYP). This was the accountability component of No Child Left Behind that required “school, district, and states which receive Title I funding to make annual progress toward the goal of bringing 100% of their students at least to academic proficiency by the end of 2013-2014 school year” (Kauerz & McMaken, 2004, p. 1).

Achievement gap. This was the average amount of distance of achievements between different demographic groups of students (Borman, 2003; Holland, 2007).

Developmental Indicators for the Assessment of Learning (DIAL-3). The DIAL was initially created in 1971 for the purpose of a “screening procedure that would identify young children with either current or potential learning problems” (Mardell-Czudnowski & Goldenberg, 1998, p. 10). The assessment was revised two more times since the original DIAL, with the latest one in 1998. The primary purpose for this revised assessment was for predictability of potential learning problems for young children. The DIAL-3 assessment contained three areas of content: motor, concepts and language.

Highly qualified teacher. All teachers must be highly qualified by the school year 2005-06. A highly qualified teacher is one with a bachelor’s degree, state certification and knowledge of subject being taught (USDE, 2004a).

National Association for the Education of Young Children (NAEYC). The mission of this organization was “to serve and act on behalf of the needs, rights and well-being of all young children with [a] primary focus on the provision of educational and developmental services and resources” (NAEYC, 2007, ¶1).

National Council of Teachers of Mathematics (NCTM). The mission of this organization stated: “a public voice of mathematics education providing vision, leadership and professional development to support teachers in ensuring equitable mathematics learning of the highest quality for all students” (NCTM, 2007, ¶1).

No Child Left Behind Act (NCLB). This policy was passed in 2001, by President George W. Bush with the focus to initiate improvement for all students’ academic achievement. The act required “clearly defined statewide standards for academic proficiency, mandating teacher and para-professional quality standards, and enacting annual testing in third through eighth grade with results disaggregated by subgroup” (Wong & Nicotera, 2004, p. 101).

Parents as Teachers Program. The Parents as Teachers (PAT) program was established in the mid 1980s in Missouri. The purpose of the program was to work with those families who wished to receive help in developing their child’s cognitive, language, motor, and self-help development before the age of five. The home visits from the PAT program teacher were to provide the support to the parents while monitoring the development of the child (Coleman, Rowland, & Hutchins, 1997).

Parent involvement. As required by the guidelines of Title I, “parent involvement opportunities must be offered to assist parents to be partners in their child’s education” (Missouri Department of Elementary and Secondary Education [MODESE], 2006, p. 31).

Poverty/low income. Poverty is the condition of not having enough income to provide basic needs for survival such as food, clothing, and shelter (Brooks-Gunn & Duncan, 1997). For the purposes of Title I program eligibility, poverty or low-income was defined as qualifying for free or reduced lunch based on government standards (Kirby, McCombs, Naftel, & Murray, 2003).

Preschool/pre-kindergarten/early childhood. Title I preschool programs could serve three- or four- year olds with four-year olds receiving priority (MODESE, 2006). Within the context of this study, the focus was on children aged four- or five- years old who and was one year from entering kindergarten. Also within the context of this study preschool, early childhood and pre-kindergarten were synonymous, unless otherwise noted.

Targeted assistance programs. Title I programs were considered targeted if the funds were used to first focus support on the most at risk students (Kirby et al., 2003). “A preschool may be established at a building which qualifies for Title I services. Children are determined eligible for this program if they qualify based upon multiple criteria and reside in the school attendance area” (MODESE, 2006, p. 31).

Title I of the Elementary and Secondary Education Act (ESEA). This is also known as Title I and in the past, as Chapter 1. As of 2000-2001, more than \$12 billion annually was spent on this program. This program is the largest federally funded program focusing on improving the educational needs of children who lived in a high poverty neighborhood (Kirby, et al., 2003). The primary goal of Title I was to eradicate or narrow the achievement gap separating disadvantaged children and more advantaged children (Borman, 2000).

Summary

This dissertation consisted of five chapters. Chapter One introduced the background and conceptual underpinnings of the study. The background of the study stemmed from the additional pressures of NCLB, placed on school districts, to support the needs of disadvantaged young children. Some districts chose to implement a targeted Title I pre-kindergarten program without necessary data to verify effectiveness. The underpinnings of the study branched from Pattons' (1998) program evaluation which determined effectiveness of a program. Data was systematically collected and analyzed to support the decision of effectiveness.

The statement of the problem, purpose of the study, and research questions were also presented. There were five questions to be answered with this study. All focused on the effectiveness of a targeted Title I program on children's language and reading skills, motor skills, mathematical skills and an overall composite. The limitations and assumptions of the study were cited and definitions of key terms were listed.

Chapter Two presented a review of related literature for the study. Key concepts, research, and history connected with the study are shared. Poverty and its effects on children were discussed, as well as, early childhood interventions attempting to overcome those effects were presented. Included in the discussion of interventions are Head Start, universal pre-kindergarten programs and Title I programs.

Chapter Three detailed the design of the study presenting the research questions and null hypotheses. Also provided, was information on the research design and methodology. This included research questions, quantitative hypothesis, design of study, population and sample, data collection and instrumentation, and data analysis. In Chapter Four, the data

collection and analysis results were presented for each research question and hypothesis. A summary of the study, findings, and recommendations and implications for future studies were presented in Chapter Five.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

Much research has been conducted to identify possible effects poverty has on children. “Children living below the poverty threshold are 1.3 times as likely as *nonpoor* children to experience learning disabilities and developmental delays” (Brooks-Gunn & Duncan, 1997, p. 61); therefore, the gap between the achievement level of low-income children and other students becomes greater as the children age (Wright, Martland, Stafford, & Stanger, 2004).

The Title I program, which was part of the Elementary and Secondary Education Act of 1965, was established to help with the developmental delays and reduce achievement gaps between the low income students and other students. With funding from Title I programs, school districts provided additional resources to accelerate children who attended a school located in low income neighborhoods. These programs were formed to support those children who were lost in the state and local policy-making process and yet were very much in need of help (Wong & Nicotera, 2004).

With the passage of No Child Left Behind (NCLB) in 2001 by President George W. Bush, a new responsibility for leaders in the educational arena was pushed to the forefront. All children were expected to be proficient in reading and mathematics by third grade or the school district would be under the penalties of the state and federal educational systems. The purpose of the reform was to hold school districts’ educational systems more accountable for all children because, in the past, individual progress was not identified. Children of the unrepresentative averages could have poor achievement

but not noticed (USDE, 2004a). Schools most affected by the NCLB Act were those where Title I funds were utilized. If the school fails to meet the expectations of academic advancement of all students then the school could lose those Title I funds.

These new demands on school districts with Title I funds necessitated action from leaders to reevaluate how teaching and learning were done, in order to maximize the achievement of all students, regardless of the children's economic factors. Yukl (2006) emphasized the need for districts to establish effective leadership in order to provide direction and support during a turbulent, changing environment. School officials must also determine if the use of the Title I funds were most effectively utilized to achieve the goal of reducing the achievement gap of those low income children and others while also meeting the requirements of NCLB. There were many options for a school district to distribute Title I funds; therefore, it is necessary for leaders to make sure those funds are utilized in the most effective and efficient way possible (Borman, 2000).

Some districts chose to fund interventions that targeted only reading or both reading and math in grades three through eight. Other districts distributed funds to provide interventions from grades as low as pre-kindergarten and high as grade 12. Within this literature review the focus was on a Title I intervention targeted toward the pre-kindergarten children. First, a review of what researchers define as poverty and effects of this condition on children was presented. Then, an overview of the fundamentals of language and reading development, along with concepts and mathematical development was discussed. The third section of the literature review was devoted to early childhood interventions offered in the United States to children of poverty. This portion reviewed three publicized preschool programs with longitudinal studies, as well as, a review of Head Start and universal pre-

kindergarten. Finally, the literature review chapter included a portion devoted to the focus of Title I assistance encompassing the history of the program and guidelines mandated by the federal government. Also within this section a review of the assessment DIAL-3 was given.

Poverty of a Child

The National Center for Children in Poverty [NCCP] (2007) reported in 2006, 39% of all children in the United States lived in low-income families. This equated to more than 28 million children. Of those, 17% lived in poor families. Some of the characteristics of those who were officially labeled poor included 33% of black children, 40% of American Indian, 27% of Latino children, and 10% of white children (NCCP, 2007).

Payne (2005) researched families of poverty and distinguishes between two types, generational and situational. She defined generational poverty as living in poverty for at least two generations. Families living with this type of poverty established their own belief systems and hidden rules. Situational poverty, on the other hand, was a family becoming poor due to an event occurring such as a death or divorce. These families lacked the resources to overcome the event and fell into the life of being poor (Payne, 2005). Understanding the family situation and type of poverty for the support system was crucial in determining why children are resilient or children might struggle. It was possible success in school might be counter productive to the culture of the family in a generational poor home.

Mistry et al. (2004) confirmed family's income and dynamics influenced the cognitive outcomes of the children of the home. There was a direct link to the family's

dynamics and behavioral outcomes to the family's income. Furthermore, Mistry et al. continued, income of the family is directly linked to the development of young children's cognitive outcomes. In addition, income seemed to matter more for those of poor families than non-poor families. Dearing et al. (2001) noted similar findings that a decrease in family income was associated with worse developmental outcomes for children.

It was strongly noted by the researchers that the effects of family income also impacted the parents' mental health and parenting behavior. This, in turn, affected the whole family system (Dearing et al., 2001; Linver et al., 2002; Mistry et al., 2004). Low income families struggled to afford reliable transportation, a safe home, and adequate health coverage. These families worked against huge obstacles in order to care for their children (Southern Institute on Children & Families, 2002). All of these pressures on the parents of the home could cause parental depression to set in. Parental depression could then interfere with interactions between the parent and children. Even more devastating, this depression could also impact strongly on a young children and their ability to self-regulate their behavior (Mistry et al., 2004). This lack of self-regulation could have a negative impact within the school classroom where children were expected to stay seated and respect property and others.

Linver et al. (2002) noted most prevalent effects of low income seemed to be strongest during the children's preschool and early school years, especially when the home was very poor. After Linver et al. studied this issue further, it was concluded the higher family income was associated with a home environment which was more stimulating cognitively for the children. These homes also included positive parenting practices and a happier, less stressed mother.

Regardless of family income, some children were resilient despite the deficiencies in parenting (Horning & Rouse, 2002). This was important for educators to note because there were means for creating resilient children so they could thrive developmentally. The common variable Horning and Rouse discovered to aid in the children's resiliency was a supportive community and teachers.

Supportive programs for families and children who lived in low income homes could provide those resources that families might lack. These resources such as subsidized meals, which an educational system could provide, could influence the family greatly (Payne, 2005). Children who grew up in homes without the warmth and care of supportive parents were found to be resilient to the problems that come with these living conditions, through the help of social services (Horning & Rouse, 2002). Horning and Rouse also noted, through their studies, that children who may not be able to receive positive relationships from home, could find this support through other means provided by school systems. Positive relationships in school could encourage and fulfill the need to belong and feel wanted, thus, providing social and emotional support to these children. In addition, children involved in school activities and receiving nutritious meals continued to develop physically. This support from teachers and communities, provided to these children, could instill a sense of resilience; therefore, enabling them to cope with their everyday life and flourish.

Along with the possibility of encouraging resiliency, Reynolds and Robertson (2003) determined from their studies "large-scale early-education programs can be effective in counteracting demographic and family risk factors that lead to child maltreatment and victimization" (p. 19). By establishing school-based early childhood

programs with comprehensive services, the effects of living in poverty including child maltreatment would be greatly diminished (Reynolds & Robertson).

Language and Reading Development

Most experts agree there are important foundational principles of literacy (USDE, 2004b). Dorn and Soffos (2001) emphasized “beginning readers should have many opportunities to learn about print” and “hearing books aloud is a vital part of learning how to read” (p. 19). Yet, what is disconcerting is a lack of opportunities for children of poverty to be exposed to learning about print and language acquisition (Hart & Risley, 1995; Mistry et al., 2004; Wasik et al., 2002). Within this section, a review of research was provided concerning the home environment of children in poverty lacking books or language experiences. Additionally, a study by Farran and Son-Yarborough (2001) on the development of children’s language in a Title I preschool classroom, was reviewed.

Mistry et al. (2004) announced as a consequence of low income, young children did not have stimulating language material, such as books, at home. This, in turn, revealed itself as basic language and math deficiencies when entering kindergarten. Wasik et al. (2002) warned school systems must be prepared to have children of poverty with no understanding of the concepts of print. These children from poverty had very different experiences, or lack of experiences, compared to those children from higher income homes (Wasik et al., 2002). Therefore, classroom teachers will need to work with these children to help them discover the structure of a book and print system

Hart and Risley (1995) conducted a longitudinal study of cumulative words addressed to a child. For this study the researchers categorized the observed families by their socioeconomic status (SES). Based on the parents’ occupation, a code was assigned

as designated from the 1980 census on occupational classifications (Hart & Risley). Parents' income and educational attributes were all taken into consideration before a code was assigned. Families were then assigned one of three income classifications for purposes of data analysis and conclusions. The families were either classified as higher SES/professional, middle/lower SES/ working class or welfare.

Through a study from Hart and Risely (1995), it was discovered by the time children are 48 months of age in a higher SES home, 50 million words were spoken compared to only 15 million words from children in a welfare home. Also found, was the rate of vocabulary growth between the higher SES home and the welfare home. As the children aged, the growth between the groups widened; therefore, the children of welfare fell further behind the higher SES homes. By the age of 36 months, children from the higher SES home spoke on average 1200 vocabulary words compared to 500 words from the children in a welfare home (Hart & Risely).

Research conducted by Farran and Son-Yarbough (2001) determined the interaction of play between children who were enrolled in the preschool classrooms. The study was conducted in Title I funded preschools, where researchers collected descriptive data on the interactions of the children during free play activities. The researchers discovered in the classrooms with the poorest children, more parallel play and less associative play occurred. This discovery raised concern with the researchers because this type of occurrence of play meant children were not interacting with each other as expected. Thus, the children of parallel play were not creating further connections cognitively as compared with children who interacted during associative play.

At first glance, children not interacting during play could raise concerns. Yet, Farran and Son-Yarborough (2001) cautioned, a different interpretation of the data regarding parallel play could be surmised. Due to the children coming from homes of poverty, they needed more experiences in parallel play because this was not provided at home prior to preschool. For educators of preschool classrooms, the researchers suggested focusing their energies on facilitating play with the children and encouraging verbal interactions among the children. This would support success later in the children's school careers (Farran & Son-Yarborough). The researchers also summarized more talk, whether during parallel or associative play, would support the emerging literacy of these young children. Aligned with Farran and Son-Yarborough, researchers Wasik et al. (2002) similarly touted effective preschools included a rich oral language and strong vocabulary development. In addition, these classrooms had an emphasis on book reading activities through a theme-based curriculum.

To conclude, due to the nature of poverty and lack of opportunities to learn about print and language usage (Hart & Risely, 1995), it was imperative teachers become highly effective in working with these children. These children must be provided opportunities "to talk, to use connected language, and to receive feedback on their language" (Wasik et al., p. 105) in order for children's language to grow.

Concepts and Mathematics Development

Mathematics education was one of the least emphasized activities in preschool classrooms educating high poverty children (Wasik et al. 2002). In 2002, the National Council of Teachers of Mathematics (NCTM) and National Association for the Education of Young Children (NAEYC) announced a joint position regarding early childhood

mathematics education. This position stated, “high-quality, challenging, and accessible mathematics education for 3- to 6- year-old children is a vital foundation for future mathematics learning” (NAEYC, n.d., p. 1). If children began to lag behind their peers in their numerical knowledge, this difference would only increase as the children progressed in school (Wright et al. 2004).

Wright et al. (2004) constructed a system of numerical knowledge, or numeracy of children. This system of knowledge was called the Learning Framework of Numbers, which included early arithmetical strategies. The framework defined mathematical stages and levels of progressions children must advance through in order to have a successful foundation in numeracy before entering first grade. The research behind this learning was based on “Piaget’s notion of assimilation and accommodation in the context of schemes” (Steffe & Cobb, 1988, p. 286). Each stage in the Learning Framework overlapped and was an advancement of the previous stage, thus, the child could solve the same problem as before but more sophisticatedly (Wright et al., 2004). The framework included number identification, forward and backward counting, and arithmetical strategies children progress through in order to become proficient mathematically.

In order to help address the deficiencies children from poverty had mathematically, Dr. Robert Wright established an intervention program which targeted first graders, called Math Recovery (Wright et al., 2004). This intervention supported the child in a one-to-one setting with a highly trained teacher. The teacher supported the child through strengthening weak areas linked to the Learning Framework. Ideally, if children received support in the preschool years, they would not need this intervention.

An obstacle educators faced was the perception low income parents might have regarding mathematics. The importance of mathematics on children's later learning needed to be emphasized as much as literacy (Wasik et al., 2002). Parents needed help to understand the earlier children can learn and obtain the mathematical foundation, the less likely children will struggle in school. Drummond and Stipek (2004) surveyed 234 low income parents related to the importance of helping their children. The researchers discovered parents believed it was more important to support their children in reading than math. Drummond and Stipek concluded their findings did not imply some parents did not want to help, but more likely, the parents did not know how to help. Educators must be aware of these needs and help parents with specific mathematical approaches as well as enumerate the importance of mathematics (Drummand & Stipek).

In conclusion, children living in homes of poverty generally have a very low achievement in mathematics. Similar to reading, lack of money limited the number of materials and experiences children encountered at home prior to entering pre-kindergarten (NCTM, 2006). Children adapted to new learning based on the experiences they had (Steffe & Cobb, 1988); therefore, if children's homes lacked these new experiences involving mathematics, then new learning could not occur.

Early Childhood Intervention Programs

The NAEYC (1995) emphasized "high-quality early education programs provide the foundation for school readiness and must be available to all young children and families" (p. 1). In addition, the organization noted these early interventions supported those children who may be at risk to fail when comprehensive services were provided (NAEYC). Presented in this portion of literature review was first an overview of early

intervention programs including trends and availability. Next, research was presented reviewing three longitudinal studies called Carolina Abecedarian, Chicago Child-Parent Centers, and High/Scope Perry Preschool Project. Lastly, an overview of Head Start and Universal Pre-Kindergarten programs was discussed.

Overview of programs

Those children who were at the highest risk of failing, due to low family income, were the least likely to have access to the kind of early intervention classrooms needed (NAEYC, 1995; LoCasale-Crouch et al., 2007). Children could attend for-profit or non-profit preschool programs. These program were identified as either Head Start, child care, day care, home based, church based, school based or nursery school. Thus, preschool participation became “complex and dynamic, with children attending a patchwork quilt of public and private programs” (Barnett & Yarosz, 2007, p. 1). The focus of the various programs could vary based on the needs of the children, such as educational advancement, or based on the needs of the parents, such as babysitting.

In 2005, the number of children enrolled in some type of preschool program was two-thirds of four-year-olds and more than 40 percent of three-year-olds (Barnett & Yarosz, 2007). Due to the large number of children enrolled in preschool, it was important to determine to what extent these programs were effective in supporting children’s learning. Irons and Harris (2007) emphasized quality factors of preschools that ensured an effective preschool program. These factors included the starting age of children by three, the involvement of parents, a low teacher-to-pupil ratio, utilization of highly qualified teachers, and the use a broad rich curriculum to stimulate the children intellectually (Irons & Harris).

Barnett and Yarosz (2007) reported findings from the National Household Education Survey (NHES) regarding pre-kindergarten education participation by ethnicity. The years of summary were from 1991 to 2005. It was concluded African-American children had the highest participation rate while the Hispanic children had the lowest pre-kindergarten participation rate. It was concluded Hispanic children participated the least in pre-k programs due to inadequate access to those programs (Barnett & Yarosz, 2007).

The national average of state spending per child on preschool programs in 2005-2006 was \$3482 (National Institute for Early Education Research [NIEER], 2006). With the cost of a preschool program four to seven times more than a regular school program (Irons & Harris, 2007); they must be as effective as possible to overcome the large economic investment. A good, early education could teach the children far beyond academic knowledge and skills. It could shape children's attitudes and habits regarding learning, thus, influencing their social and emotional development (Schulman, 2002). The discussion of quality, effective early education was dampened by Barnett and Yarosz (2007) research findings. Barnett and Yarosz reported high quality preschools were not the norm in the United States; therefore, most preschool programs had little positive effect on the learning of the children.

Three Preschool Program Studies

There were three preschool programs which had ongoing longitudinal studies worth mentioning, due to the nature of implementation and outcome results. The three programs were Carolina Abecedarian, Chicago Child-Parent Centers, and The High/Scope Perry Preschool Project.

Carolina Abecedarian Study. This study began in 1972 with 112 children targeted based on their families background as indicating at risk conditions. The children received comprehensive interventions based on their needs in a low child-teacher ratio classroom. An emphasis on the development of the children's language was also administered. Parents were expected to be involved with their child's educational experiences. If the mother was in need of child care, this was provided so she could go to school or receive additional training. By age 21, 104 children were evaluated again to determine their lifestyle choices and schooling outcomes. Schulman (2002) noted a positive academic achievement on the children's math and reading.

Chicago Child Parent Center Program. This program was established in 1967 using Title I funds to provide services for children from ages 3 to 9 who were disadvantaged economically and educationally. The children attended neighborhood schools for their intervention. The preschool program served the children half-day mornings with the goal of promoting school readiness for children aged three and four. The focus of the program was on reading and language skills along with comprehensive services and parental involvement for the whole family. Schulman (2002) expressed children in the preschool group were less likely to be in a home of abuse or neglect as compared with the group without the intervention. The teachers focused on the individual needs of the children and created instruction support based on the children's needs. This intensive intervention was provided to the children for up to six years of preschool with additional support up to third grade. The parents were expected to be involved with the child's learning and be present at least one-half day per week (Irons & Harris, 2007; Reynolds, 1995).

Reynolds (1995) conducted a study to determine the effects of the Chicago Child Parent Center Program on low income black children. The children were enrolled in either one or two years of this Head Start type program. He researched to determine if two years would impact the children more than just one year of intervention. It was believed by the researcher, due to limited financial resources, the amount of intervention children needed for maximum effects was important to determine. Reynold explained if an additional year had no additional impact on the children then the money should be used to fund more children's participation. Reynolds did discover there was a positive impact on the length of the intervention and outcomes of the children. He also noted, though, that by the time the children reached sixth grade, their achievement scores were well below national averages. Even though the scores were below average, the children who received two years of preschool intervention scored higher than the children who receive one year of intervention or no preschool intervention (Reynolds, 1995).

The High/Scope Perry Preschool Study. This study tracked children for the past 40 years beginning from when they first began in a high-quality pre-kindergarten program through their adult years. The purpose was to determine the results of their lifestyle choices and career outcomes. This program also included parent education, combined with early childhood education, to provide lasting benefits in multiple domains (Proven Benefits, 2005). Children who did participate were compared to a similar group of children who did not participate in the program to see if the program made a difference. "Many of the benefits of this high-quality early education experience, [include] improved academic performance, decreased welfare dependency, and reduced

crime rates” (Schulman, 2002, p. 2). The intervention is no longer in effect, but ongoing research continued to evaluate the effects of these children as they age.

In summary, although the three longitudinal studies involved different types of programs from different communities (Barnett & Yarosz, 2007), there were common threads throughout each program that seemed to enhance the learning for the preschool children. Each program emphasized parent involvement, high teacher qualifications, and a focus on the individual child which created an environment where learning was optimal by keeping child-teacher ration low. Irons and Harris (2007) noted all three programs showed evidence of an impact on those children who attended. The evidence showed a higher incidence of the children graduating from high school and attending college.

Although successes have been touted regarding these three programs (Iron & Harris, 2007), a concern had been noted in research. Christina and Nicholson-Goodman (2005) noted these programs came with a high cost in order to receive a highly intensified program. This concern, therefore; created the virtually impossible task of states replicating such programs without large amounts of funding (Christina & Nicholson-Goodman).

Head Start

Established in 1964, Head Start is the largest federally funded program to help severely poor families support their young children (NIEER, 2006). The NIEER reported in 2005-06, approximately 11 percent of all four-year-olds and seven percent of all three-year-olds participated in the program. These numbers reflected about 721, 289 total children. The amount spent serving these children in 2005-2006 was \$7,287 per child with a total cost of \$6.8 billion (NIEER, 2006).

Participation in this program was limited to those families who had young children and incomes below the federal poverty line (Barnett, 2004). The emphasis of the program was to improve the social, emotional, and cognitive growth of the child (Wasik et al., 2002). In addition, the focus of the program was to provide a broad range of services to the families and the young children especially educational needs (Barnett & Yarosz, 2007). These comprehensive services for the families included health screenings, referrals, meals, and parental support (NIEER, 2006).

Concerns regarding the quality of Head Start programs appeared in the review of literature (Barnett et al., 2004; Barnett & Yarosz, 2007; LoCasale-Crouch et al., 2007; NIEER, 2006). LoCasale-Crouch et al. (2007) conducted a study to determine the quality of instructional support of state-funded pre-kindergarten classrooms. The researchers concluded the poorest quality classrooms were more likely to receive Head Start funding. Researchers discovered the unevenness of high quality teaching across the United States. Also expressed by LoCasale-Crouch et al. (2007) was concern the poorest quality classrooms held the highest concentration of the most disadvantaged children. In addition, these poor quality classrooms had the highest amount of non-Caucasian children with the lowest family incomes.

The classrooms researched by LoCasale-Crouch et al. (2007) lacked social and emotional support for the children, as well as quality curriculum and instruction. This lack of quality instruction could be connected to poor quality of teachers in the classroom. As of 2005-2006, the teachers of this program were not required to have a four-year teaching degree (NIEER, 2006). Additionally, attracting certified teachers was a challenge because salaries were about half the average of teachers in K-12 schools.

An additional concern was the amount of children still in need of pre-kindergarten services. Head Start possibly reached only one-half to one-third of the children eligible to receive help (Barnett et al., 2004; NIEER, 2006). This gap in services available to all needy children was a reason why state governments were working to find ways to help support the children who otherwise would not receive any (NIEER). Nationally, a new argument had risen to the surface of the educational system, as well as the political arena; the concept of a universal pre-kindergarten program for all children (Maeroff, 2003).

Universal Pre-Kindergarten Program

A rationale for a universal pre-kindergarten program stated by Maeroff (2003) involved the desire of state governments to include more children in services than what Head Start has been able to do. Discussion of universal pre-kindergarten had increased over the past few years within state and federal government. This program meant a variety of possibilities for children and families. Universal pre-kindergarten could possibly mean one of four variations of preschool (Barnett et al., 2004). The preschool could be free and available to all children or affordable and still free to all children. The other two options universal pre-kindergarten could be it is free or with a subsidy provided but that all children must attend. The option of free preschool programs available to most four-year-olds had already been established in Oklahoma, Georgia, and Florida (Barnett & Yarosz, 2007).

With attention on state-wide preschool for all children, concerns for equality for disadvantaged children, such as families having sufficient funds to cover costs to attend private preschool, rose. This was especially true for those states that pushed for universal pre-kindergarten and do not make it free and available to all. An additional concern,

resonating among states, was the concern of having sufficient educators to teach these preschool children. Lacking sufficient certified teachers, many cities were forced to accept teachers with only associate degrees (Irons & Harris, 2007). This, in turn, did not provide the most highly qualified teachers working with those most in need. Barnett and Yarosz (2007) announced concern of quality being sacrificed in order to strive for higher participation rates. They noted “higher standards and added resources for quality are essential components of any effort to increase equality of access to effective preschool education” (Barnett & Yarosz, 2007, p. 13).

An additional argument against mandated preschool programs was expressed by Gill (2007). He stated taxpayers already provided financial support for Head Start program; therefore, should not be required to pay for another preschool program. Yet, Maeroff (2003) argued the purpose of universal pre-kindergarten would be for the large quantity of Americans in the middle income or near poor who do not qualify for Head Start and can not afford preschool.

Maeroff (2003) suggested before universal pre-kindergarten programs become available; a detailed plan must be in place. Presently, preschools could be found in many locations such as school, churches or in a home. These programs could be for profit or not for profit. How to monitor these locations and situations of pay would have to be addressed before a mandate could be established. In addition, Maeroff (2003) warned, states would not be able to afford such a plan as universal pre-kindergarten until they achieve higher financial ground. On the other hand, Barnett et al. (2004) postulated, voluntary, universal pre-kindergarten could possibly be more educationally effective and economically efficient than targeted preschool programs.

Title I Program

The Title I program, which was part of the Elementary and Secondary Education Act of 1965, was established to support children who had developmental delays that might be associated with living in a high poverty home. With funding from Title I programs, school districts provided additional resources to accelerate those children who attended a school located in low-income neighborhoods. The passage of No Child Left Behind (NCLB) in 2001 by President George W. Bush, instilled new pressure and accountability on school districts that receive Title I funds. The NCLB act mandated to schools that all children must be of proficient level academically in reading and math.

With in this section of review of literature coverage of the Title I program will be given. First, an historical review of the Title I program will be provided. This portion will include what policies drove this program for over forty years and how the federal government's role has changed. Next, an explanation of literature regarding Title I preschool as well as targeted Title I will be presented. A focus and purpose and the components of Title I will then be reviewed. The components of Title I will include: criterion for selection, curriculum requirements, teacher qualifications, and parent involvement. Finally, a description of the Developmental Indicators for the Assessment of Learning (DIAL-3) instrument used in this study will be explained.

Historical Review of Title I

When segregation was outlawed by the United States Supreme Court in the decision of Brown versus Board of Education, a new era began in the fight to support all children to equality and equity in education (Borman, 2000; Psacharopoulos, 2006; USDE, 2004a; Wong & Nicotera, 2004). During the 1960s, the role of the federal

government in helping disadvantaged children grew significantly. Programs were created to compensate for the poor conditions that had developed over time in the segregated schools for Black students (Hart & Risley, 1995). Other populations segregated during that time period, such as the Latino students in the Southwest, were also a focus for support (Johnson, 2007; Valverde, 2004). These new programs were considered the Great Society programs, with the goal of providing supplemental services to those children underrepresented at the local and state levels of policies (Wong & Nicotera, 2004).

The Title I program, which is part of the Elementary and Secondary Education Act of 1965, was considered one of the Great Society programs. It was established to help with developmental delays and reduce the achievement gap between the low income students and other students (Wong & Nicotera, 2004). With Title I funded programs; school districts were to provide additional resources to accelerate children who attend a school located in low income neighborhood.

School districts were required to commit at least the same level of local resources as they provided in previous years. Audits in the 1970s discovered misuse of funds was occurring in districts; therefore, additional monitoring was enacted in order to monitor use of funds (Borman, 2000; Valverde, 2004). Districts utilized Title I resources as a general aid; therefore, funds were not targeting on specific needs of the most disadvantaged children (Borman, 2000).

From the years 1981 through 1994 Title I was referred to as Chapter I. The name returned to Title I in 1994. For part of this period of time, from 1981-1989, Ronald Regan was president. During his presidency many federally funded programs were consolidated, while Title I funds were reduced. This reduction of funds, in turn, reduced the amount of

federally funded services to children (Wong & Nicotera, 2004). The management of Title I programs also shifted during Regan's presidency. The government shifted from monitoring the management of money, including proper use of the funds of Title I, to monitoring the academic expectations and outcomes of these programs. Title I program compliance had moved away from just regulatory to a focus of curriculum and instruction of the children (Wong & Nicotera).

With the reauthorization of the Title I policy in 1988, the focus of the quality of education was apparent although the guidelines for standards and standards among states needed refinement (Wong & Nicotera, 2004). In 1994, the Improving America's Schools Act (IASA) was passed which increased accountability of school districts and strengthened curricular standards. "These sweeping changes are designed to transform Title I from a supplemental remedial program to an integral component of standards-based, whole-school reform" (Borman, 2000, p. 41). The legislative actions of IASA took the federal government one step closer toward requiring states and districts to make comparisons of student academic achievement between Title I and non-Title I students. States were mandated to work with all students and focus alignment to state standards along with creating adequate yearly progress goals. Finally, at that time of reallocation of Title I, the supplies of funds were still based on the level of poverty rather than the achievement of the students (Wong & Nicotera, 2004). It would not be long before this focus changed to spotlight children's low achievement instead of children's family income.

The passage of NCLB in 2001, by President George W. Bush, forced a new responsibility on leaders in the educational arena. The primary focal points of NCLB

were created to place pressure on state education systems. The outcomes desired were for state education personnel to enact systems of accountability with schools and create statewide standards for academic proficiency. State departments were also to hold teachers to higher standards, and annually assess students in grades three through eight, with data disaggregated by subgroups (Wong & Nicotera, 2004).

Within 20 years, from 1980 to 2000, the focus of the federal government educating the students of the country shifted from a hands off policy to a total control policy through mandates with Title I funds. United States Department of Education (2004a) noted, No Child Left Behind ensured accountability that was lacking in years past along with increased federal support for the education of all children. All children were expected to be proficient in reading and mathematics by third grade or the school district would be under the penalties of the state and federal educational systems. The purpose of the reform was to hold school districts' educational systems more accountable for all children because, in the past, schools were not forced to accommodate all children's learning (USDE, 2004a).

No additional money was directly connected with the passage of NCLB, to support the new expectations. Thus, a growing concern with Title I funds, connected with the new policies of NCLB, was the reserve money that must be set aside for schools which do not make Adequate Yearly Progress (AYP) as set out by the law. This money which must be set aside was not allowed to go to school sites and be used until needed by specific sites that did not make AYP. Therefore, this set aside money requirement caused a reduction of funds to school sites because districts were mandated to reserve funds for future at risk schools not making AYP (Johnson, 2007). Johnson argued "holding Title I

in reserve means that he [the child] will have to wait another year to learn how to read, and even if the money comes he might not be sitting in his desk at school” (p. 396).

Title I Preschool

Due to limited Title I funds provided to a school district, and additional mandates with the passage of NCLB, more pressure had been placed on decision makers. District personnel must determine the best use of their limited Title I funds to meet the needs of the most children; therefore, achieving AYP. States and school districts are provided flexibility as how those funds are spent and to whom services are targeted. “No Child Left Behind provides unprecedented levels of flexibility regarding the management of federal funds” (USDE, 2004a, p. 19).

Some districts focused their funds on grades three through eight because these children were required to be tested, but the effectiveness of this focus was not positive. Kusters and Mast (2003) researched the effectiveness of Title I based on available data extending from 1960s through the late 1990s. The purpose of this research was to determine if this program was narrowing the achievement gap between low and high poverty schools. The most recent analysis was conducted on score from the middle to late 1990s. These scores were from United States’ fourth graders taking the National Assessment of Educational Progress (NAEP). The researchers concluded. no noticeable improvements between the achievement gap between poor or minority students and those less in need were reflected; therefore, Title I did not seem to be making a difference (Kusters & Mast, 2003).

With the passage of NCLB in 2001, a renewed focus on early childhood and preschool programs had begun (Irons & Harris, 2007). The premise of this attention for

young children receiving interventions was “it is much easier not to be left behind if you don’t start behind” (Maeroff, 2003, p. 2). With the growing trend of school districts implementing educational services for pre-kindergarten children, researchers emphasized the need for additional investigations as to the effectiveness of these programs. Farran and Son-Yarbough (2001) emphasized an inherent danger with implementation of a program so quickly, was lack of time to determine effectiveness. Attention and reflection must be given to the structure of the classroom, including the teacher’s roll and the preschooler’s activities (Farran & Son-Yarbough). Similarly, LoCasale-Crouch et al. (2007) concluded since state funded, pre-kindergarten programs focus on improving the academics of children of poverty, an evaluation of program quality must be explored.

The demands on school districts caused them to become creative as to how to advance children’s learning, especially those children of high poverty (Farran & Son-Yarbough, 2001). Furthermore, academic achievement tests between Title I and non-Title I students must be analyzed to determine the impact of these funds have on the pre-kindergarten year (Barnett & Yarosz, 2007; Wong & Nicotera, 2004).

Targeted Title I. Title I programs were considered targeted if the funds were used to first focus support on the most at risk students. These students were the ones who were most at risk of failing to meet the standards of performance mandated by the state (Kirby et al., 2003). Although targeted Title I programs could span any age, preschool through high school, Psacharopoulos (2006) argued funding for education should not be allocated equally among the ages. He urged schools to provide the highest priority to the youngest of children. With the passage of NCLB, more and more emphasis of service had been

with disadvantaged preschool children (Farran & Son-Yarborough, 2001; Irons & Harris, 2007).

School districts could choose to target services to children in pre-kindergarten by establishing the classrooms at a school that qualified for those Title I services. Selection of the children for participation was based on multiple criteria, such as assessment scores, and children residing in a Title I school attendance area (MODESE, 2006). Barnett et al. (2004) stressed the concern associated with targeting preschool aged children, because the program is voluntary on the part of the parent. If the families that needed the program the most do not enroll, school officials must find them and enroll them. The researchers continued by stating that targeted programs fail to reach many of the children they are wishing to serve, because the children cannot be found. Barnett and Yarosz (2007) found from their study that children least likely to attend pre-kindergarten were those whose mother did not work outside the home and whose parents had the least education and income. Barnett et al. (2004) warned targeting just the low income children, or another certain demographic, will not address all low readers because not all children who are the low achievers are poor.

Targeted programs were not believed to dilute the quality of intervention because the resources were not spread too thin for effectiveness (Wong & Nicotera, 2004). These resources included money, facilities, and certified teachers. In addition, Barnett et al. (2004) concluded a targeted program had a smaller total budget; therefore, more affordable. These programs also avoided additional costs to the taxpayers of families who could afford preschool program.

Title I regulations mandated federal funds are not to supplant revenues by local or state finances, but to supplement those funds (Wong & Nicotera, 2004). School districts could not fund partial programming with district funds at non-Title sites, then use Title I funds for the same programming at Title I sites. This process was called supplantment and was against Title I regulations. Therefore, if pre-kindergarten was provided for all children in public schools then Title I funding must provide services in addition to this service (Wong & Nicotera, 2004). Based on Shaul's (2000) survey of school district, Title I funds are typically used as a small portion of the total cost for the districts preschool budget. Other funds, in addition to Title I, are utilized for the funding. With this finding from Shaul, determining the effectiveness of full funded Title I preschools was not determined. Therefore, Shaul concluded "Title I funds represent a significant and growing federal investment in preschool education, but its effect on children's school readiness is not known" (p. 15).

Title I Focus and Purpose

In 2001-2002, more than 300,000 children benefited from Title I preschool programs (USDE, 2004b). It was believed high quality preschool programs would provide experiences which supported children in Title I schools. Also, these programs were based on a foundation towards meeting mandated standards of educational excellences, throughout the children's elementary career (USDE). Title I programs provided the necessary support many children of poverty needed in order to compete with their counter parts who were raised in more affluent homes. This support given could equate to educational equity, manifested in providing opportunities to those children from low SES (Psacharopoulos, 2006). The educational outcomes for these children could be

advancement in cognitive development or a higher income. The ultimate goal of Title I programs would be to break the cycle of poverty (Borman, 2000; Payne, 2005).

With the reauthorization of Title I and NCLB, additional focus had been placed on those subgroups of children who were not noticed as falling behind. Subgroups such as African American, Hispanic, special education, limited English proficiency and many other students were not supported because schools were not held accountable for their progress (USDE, 2004a). These vulnerable students' achievement was lost in the unrepresentative averages. With the identification of these unrepresentative groups, more focus and support could be placed on these children. Through the services of Title I, students' achievements could be identified and supported through early intervention, reduced class size and comprehensive school reform (Holland, 2007).

Components of Title I

Title I funds are to be utilized to support those children who are educationally disadvantaged. Missouri Department of Education defined disadvantaged children as children whose "educational attainment is below the level appropriate for children of their age" (MODESE, 2006, p. 30). The Title I program served more than 15 million students in nearly all school district in the United States (USDE, 2004a). The United States Department of Education (2004a) noted the funding for this program, in the 2005 budget, was \$13.3 billion. If a school district offered preschool services, children who live in an attendance area of a school designated as Title I, were eligible for those services.

The USDE (2004b) offered three key components as important for a high quality Title I preschool program. These components included a strong curriculum in language

development, early literacy, and early math. Beyond the curriculum, as outlined by Title I guidelines and the NCLB Act, certain regulations had to be followed in order to comply with the program. The following section of the review of literature outlined these required components. These components included specific criterion for selection of students to be served, and specific curriculum requirements. Additionally, requirements included specific certifications and professional development for the Title teachers, and involvement of the children's parents (MODESE, 2006; USDE, 2004b).

Criterion for selection. Children were selected for Title I services utilizing a system involving multi-criteria. This multi-criterion was required and used to identify children for targeted Title I preschool programs (MODESE, 2006). A required criterion for selection into Title I preschool included children who resided in a designated Title I school neighborhood. In addition to this requirement, the school district could determine what other criterion to use but had to be "objective, developmentally appropriate, and educationally related" (MODESE, p. 30). Missouri Department of Education also noted data from Parents as Teachers and the DIAL-3 screening were appropriate for criterion used.

Curriculum requirements. There were guidelines to be followed in order for a school district to implement a Title I preschool program in the state of Missouri (MODESE, 2006). Requirements included no more than fifteen students could be enrolled in a classroom, taught by a full time teacher and paraprofessional. In addition to the teacher to student ratio requirement, four-year old children had to attend a minimum four days per week (MODESE, 2006). The preschool program should also adhere to the same starting and ending dates as other district buildings. In addition, the program should

align its schedule to the district's year long calendar (MODESE). Finally, a major requirement in the state of Missouri for Title I preschool programs, was approval of an implementation model. As stated from MODESE, the activities in the preschool classroom had to be developmentally appropriate and aligned to the Missouri Early Childhood Standards. Teachers could implement one of the following curriculum models: Project Construct, High/Scope, Creative Curriculum, or Head Start with Missouri Early Childhood Standards (MODESE, 2006). This close monitoring of curriculum by the state was to support the children with a consistent effective Title I education.

Teacher qualifications. As stated under NCLB, all teachers had to be highly qualified by the school year 2005-06. Highly qualified was defined as a teacher who held a bachelor's degree, appropriate certification, prior knowledge of the subject matter (USDE, 2004a). In addition to the requirements for Title I teachers, heavy emphasis was placed on the ongoing training a teacher received, in order to keep abreast of the latest sound research on best practices. Title I schools were required to provide ongoing professional development opportunities to their teachers (Borman, 2000). Wasik et al. added "knowledgeable and trained teachers are the essential factor in closing the achievement gap between children of poverty and children of access" (2002, p. 106). It was also noted by Wasik et al. that training must be ongoing, relevant, and cutting edge to meet the needs of the educator. Ongoing training was essential for teachers to implement a quality preschool program.

Parent involvement. Stress associated with poverty often disconnects parents for their children's school and other support systems (Reynolds, 1995); therefore, it was expected by the USDE (2004b) that pre-kindergarten staff communicated with parents on

a regular basis. Much was written regarding the importance of involving parents in their child's education. Kaiser and Hancock (2003) agreed parents were the children's first teacher and needed to be included in their learning. Many factors influenced achievement of children, but the overriding factor was the family's characteristics, such as attitudes, parents' education, and culture (Kosters & Mast, 2003).

The National Parent Teacher Association declared national standards and recommendations for the purpose of emphasizing the important role parents make in their children's educational lives. Sullivan (1998) claimed students performed greater in academics when parent and family involvement increased. Similarly, Reynolds and Robertson (2003) also claimed, from their studies, intensive parent involvement with preschool children and their class, reduced mistreatment of the children.

Kaiser and Hancock (2003) explained it was the school's responsibility to help these parents become involved with their children's life, through teaching the parents strategies for helping their children. These researchers noted all parents could learn new methods to help their children, but the parents must be willing to accept the help. "In making a choice, parents set their own priorities and make a commitment to learning new skills" (Kaiser & Hancock, p. 12). Parents must believe their own learning was important for the benefit of their children's development. It is with the help of support systems, such as schools, that could encourage parents to help themselves help their children (NCTM, 2006). Drummond and Stipek (2004) discovered, in their study of low income parents, over 80% of parents explained they would do more to help their children learn, if they received support from the school systems. The Parents as Teachers (PAT) program

was one such structure school districts could utilize to support parents learn how to encourage their children's learning.

The PAT program was established in the mid 1980s in Missouri. The goal of the program was to try to support families in childhood development from certificated teachers. This program encompassed parental support with cognitive, language, motor and self-help development before the children turned five years old. Parent as Teachers educators visited families' homes in order to support the parents in their own setting. The educators provided emotional support, cognitive development suggestions, and strategies for parents to encourage early learning (Coleman et al., 1997). These visits were also a time for the educators to identify possible cognitive delays with the children and get them help before long delays. Coleman et al. postulated PAT services did support early childhood educational programs; therefore, children who received these services "resulted in significant educational gains upon entry into kindergarten" (p. 5).

On the other hand, Wagner, Spiker, and Linn (2002) conducted an evaluation of the PAT program and its effects on high poverty homes and found weak results from the home visits. The researchers cited concerns with lack of focus on actually changing parent's behaviors. In addition, some parents who needed support, had such complex behaviors, thus, needed to actually unlearn the poor ones before they progress (Wagner et al., 2002). It was also noted because of the high incidence of families with poverty, the attrition rate was much higher than families of average to high income. This high mobility of families made it difficult to notice significant difference in parental learning.

Extensive research was conducted to determine the effectiveness of the PAT program on increasing children's literacy and family growth (Coleman et al., 1997;

Wagner & Clayton, 1999; Wagner et al., 2002). Guidelines for Title I preschools encouraged a PAT educator be assigned to work with families that have children in the Title I program. The teacher must be a member of the preschool team and parent involvement (MODESE, 2006). Although the cost for additional educators, focused on preschool is an additional expense, these interventions might succeed and be profitable in the long term (Brooks-Gunn & Duncan, 1997).

DIAL-3 Instrumentation

The Developmental Indicators for the Assessment of Learning (DIAL-3) instrument selected by the school officials to determine academic performances met the quantitative criterion for study. The DIAL was initially created in 1971 for the purpose of identifying young children's current or potential learning difficulties (Mardell-Czudnowski & Goldenberg, 1998). This original assessment was norm referenced in the state of Illinois in 1972 based on a conceptual model which included six areas of development. The sample of children were between the ages of 2.5 and 5.5 years and "stratified by sex, race, location (urban, rural) and socioeconomic level" (Mardell-Czudnowski & Goldenberg, p. 11). Following the development of this assessment, extensive research was conducted to confirm validity and reliability of the items. The DIAL was further revised through the years until around 1990 when it was marked as DIAL-R. These revisions were to keep improving the content, materials and procedures. The DIAL-R extended the age range to 2.0-5.11 years old.

The conceptual model of the assessment was refined to five areas of development. In the early 1990s the development of the DIAL-3 had begun. The justification for revision was to keep the norms current; therefore, retaining validity. Mardell-

Czudnowdki and Goldenberg (1998) identified recent research that identified additional items which would support the assessment in identifying at risk children during the preschool years. The items developed were tested on national samples and norm referenced in English and Spanish. The DIAL-3 expanded upward the age range from 5-11 to 6-11 years old by including more difficult tasks in each item. The primary purpose for this revised assessment was still for predictability of potential learning problems for young children. The DIAL-3 revisions were completed in 1997 with a 1560 normative sample of children who ranged in age from 3-0 through 6-11 years old (Mardell-Czudnowdki & Goldenberg).

The DIAL-3 assessment contained three areas of content: motor skills, concepts skills, and language skills. The area of motor skills involved items such as catching, skipping, building, cutting, copying, and writing. A task children might be asked is to “catch a beanbag from a distance of 6 feet” or request the child to “twiddle his thumbs and then asked to repeat the movement” (Mardell-Czudnowdki & Goldenberg, 1998, p. 18). The second area of the DIAL-3 is the concepts area. The items in the concepts area included body parts, colors, rapid color naming, counting, positions, concepts and shapes. Some examples the children are asked is to “count consecutively in a rote fashion from 1 to 20” and “place a block in various positions relative to a larger block with a picture of a house on one side” (Mardell-Czudnowdki & Goldenberg, p. 20). The final area of assessment is language skills. The items within this area included personal data, articulation, objects and actions, letters and sounds, rhyming and I Spy, and problem solving. Some examples of what children might be asked in order to assess this area were “What is your name?” and “When is your birthday?” (Mardell-Czudnowdki &

Goldenberg, p. 22). Also asked by the evaluator, was for children to recite the alphabet followed by identification of letters of the alphabet. Two other areas of assessment which are not components of the content were self-help and social. These two areas do not have specific target questions but are assessed based on responses during the content components.

The examination of literature by Anthony, Assel, and Williams (2007) justified the conclusion their research on the DIAL-3 “appears to be the first independent, large scale study to examine the convergent and discriminant [sp] validity of the subtests and scales of the English version of the DIAL-3” (p. 433). The study was conducted with children from Head Start schools, thus children of minority groups, economically disadvantaged homes, preschool aged children were involved. Based on the researchers’ item analysis findings, they determined instead of the three skill tests of language, motor and concepts, that the assessment was determining verbal ability, nonverbal ability and achievement. Although Anthony et al. (2007) concluded with questioning whether the scores were optimal, they did not believe the findings of their research disvalued the utility of the DIAL-3. Therefore, “there is no reason for the DIAL-3 to become any less relevant to psychologists, educators, program directors, or policy makers” (p. 436).

Summary

This chapter reviewed the literature related to effects of children growing up in a high poverty home and the educational interventions available to help these children overcome the setbacks associated with poverty. The development of language and mathematics of the young child and why to be concerned regarding young children in poverty were examined. Then, an overview of some well publicized early childhood

intervention programs was presented. Included in this section was an explanation of the Head Start program and the push for a universal pre-kindergarten program. Next, an in-depth review of Title I assistance was provided. With this review a historical perspective of the Title I program was given along with a more specific look into targeted Title I preschool. Additionally, the components of Title I mandated by NCLB were provided. Finally, an explanation of the DIAL-3 instrumentation used in this study was given. A closer description of the language skills, motor skills and concept skills were presented. Chapter three will provide information regarding the design and methodology utilized in this study.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

Introduction

There was a strong push on student achievement in school from the NCLB Act and the “effects of poverty on children’s cognitive development occur early” (Brooks-Gunn & Duncan, 1997, p. 61). Therefore, it is imperative a study be conducted of the effects of a targeted Title I preschool intervention program on young children. This study investigated the achievement of those students prior to entering the targeted Title I preschool, compared to their achievement after attending the program, to determine if the improvements made were of significance compared to those who were eligible but did not participate.

The importance of this research is to add to the field of knowledge regarding interventions provided to children of low socioeconomic households. First, within this chapter, the research questions to be studied will be presented along with the research and statistical hypotheses to be tested. Secondly, an in-depth review of the population and sample utilized for statistical analysis will be provided. Next, information will be given as to the process of the data collection and the instrumentation for this study will be conducted. Finally, the process for analysis of the data will be explained in detail.

Research Questions

Within the context of this study, the following research questions were addressed:

1. Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between students who have received

targeted Title I pre-kindergarten services and those children who qualified for the program but did not receive the services?

2. Is there a significant difference in academic achievement in the areas of motor, concepts, language or overall composite between male students who have received targeted Title I pre-kindergarten services and those male children who qualified for the program but did not receive the services?
3. Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between female students who have received targeted Title I pre-kindergarten services and those female children who qualified for the program but did not receive the services?
4. Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between minority students who have received targeted Title I pre-kindergarten services and those minority children who qualified for the program but did not receive the services?
5. Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between non-minority students who have received targeted Title I pre-kindergarten services and those non-minority children who qualified for the program but did not receive the services?

Quantitative Hypothesis

In order to answer the preceding research questions, the following research hypotheses were explored in this study:

Hypothesis 1. The academic achievement in the areas of motor, concepts, language and overall composite of all students who have received targeted Title I pre-

kindergarten services will be greater with statistically significant differences than all students who qualified for the program but did not receive the services.

Hypothesis 2. The academic achievement in the areas of motor, concepts, language and overall composite of male students who have received targeted Title I pre-kindergarten services will be greater with statistically significant differences than those male children who qualified for the program but did not receive the services.

Hypothesis 3. The academic achievement in the areas of motor, concepts, language and overall composite of female students who have received targeted Title I pre-kindergarten services will be greater with statistically significant differences than those female children who qualified for the program but did not receive the services.

Hypothesis 4. The academic achievement in the areas of motor, concepts, language and overall composite of minority students who have received targeted Title I pre-kindergarten services will be greater with statistically significant differences than those minority students who qualified for the program but did not receive the services.

Hypothesis 5. The academic achievement in the areas of motor, concepts, language and overall composite of non-minority students who have received targeted Title I pre-kindergarten services will be greater with statistically significant differences than those non-minority students who qualified for the program but did not receive the services.

Design of the Study

A quasi-experimental design approach was used in this study. This quantitative research design generated hypotheses which were able to test with data (Gay & Airasian, 2000; Merriam, 1998). Quantitative research approach had a predetermined plan of action

and was structured. Patten (2000) noted this strategy was useful, if working with a large amount of data and no extensive interactions with participants is possible. After all data was obtained, statistical analysis of data could begin (Krueger & Casey, 2000). Also, if a researcher desired to discover a snapshot of a narrow aspect of a problem, a quantitative approach would be best (Patten, 2000).

This quantitative study compared test results from the DIAL-3 assessment. Data available was pre-existing data of children who qualified to a targeted Title I pre-kindergarten program. After the pre-kindergarten intervention, all children who qualified for the targeted pre-kindergarten program, and did not move, were reassessed with the DIAL-3. To strengthen the validity of this quasi-experimental design, a comparison of the two groups of children's DIAL-3 scores will be conducted. This comparison will determine similarities between the groups; therefore, determining if prior to intervention, they started out with the same level of academic need. If it is determined that the two groups of children are dissimilar, then analysis using independent *t*-tests of gain score means will be utilized (Field, 2005).

Population

The site chosen for this study was a Missouri urban school district with approximately 24,000 children in grades K-12. This site was chosen for the study because the school district provided a targeted Title I funded, pre-kindergarten program. The population of children selected to attend the program was based on multi-criteria gathered by the Parents as Teachers program. This data included parent observations and the DIAL-3 standardized assessment. All children assessed, lived in a Title I neighborhood; therefore, income status was not a criterion for selection but the location of their home

was. More children qualified than availability of services, so there were children who were left on a waiting list. The maximum number of children in each class was 15. The classes were staffed with one full-time certificated teacher and one para-professional. The children attended five days a week for 6 hours a day, which aligned with the districts' school day expectations for all children. Teachers' certification must be state certified in the field of Early Childhood Education as required by NCLB.

Sample

A nonrandom sample of 476 participants was achieved from recruitment by the Parents as Teachers office (Heppner & Heppner, 2004). This recruitment was focused on families living in Title I neighborhoods with a pre-kindergarten aged child. The sample of children were included if the parent provided permission for the child to be assessed. Within the 476 participants, two subgroups were formed by the Title I office personnel based on multi-criteria. The multi-criteria included the DIAL-3 composite score, input from the PAT educator, and input from the child's parent. Each component of the multi-criteria was assigned a point, and the higher the composite score from the multi-criteria, the greater the child's need for Title I services. With the information, children who showed greatest need of Title I services were recommended to be placed in a Title I pre-kindergarten classroom first (MODESE, 2006). The children, who did not show as much need, were placed on a waiting list for the possibility of being placed, if an opening occurred.

For the purposes of the study, there were a total of two sample groups of children. One of the sample groups consisted of children who are educated in one of nine elementary buildings. The total number of classrooms available was 15. Each classroom

consisted of one Missouri certificated teachers, one classroom para-professional, and a maximum class size of 15 students. The other sample group consisted of children of the district living in a Title I school neighborhood but did not receive targeted Title I pre-kindergarten intervention. Although multi-criteria was utilized to determine placement of the children, for the purposes of this study, only the DIAL-3 academic scores would be of interest.

At the end of the school year, all children were reassessed regardless if they attended the pre-kindergarten class or not. This information was used by the district as an entrance examination for kindergarten. The district only focused on the composite score from the DIAL-3, but for the purposes of this study, all three components including motor, language and concepts as well as composite would be utilized.

Data Instrumentation and Collection

Quantitative data used for analysis for this study was preexisting data collected from April 2006 through October 2007 within the district by certificated trained teachers and school officials in the Parents as Teachers office. The assessment given to the children within this study was the DIAL-3 with the three components of motor, language and concepts, as well as a composite score. The investigator did not assist with administration of the assessment and had no contact with the participants. Gatekeeper consent was provided to the researcher by the PAT department and school district with full access to the students' data. Access was also available due to the membership the researcher holds with the district. The researcher compiled the gender, race, DIAL-3 pre and post data to an Excel spread sheet with no identifiable markings to trace back to children were kept. The researcher was responsible for tracking down any missing scores

or other data needed. The Institutional Review Board (IRB) approved the study prior to analysis of data.

DIAL-3 Instrumentation

The Developmental Indicators for the Assessment of Learning (DIAL-3) instrument selected by the school officials to determine academic performances met the quantitative criterion for study. The DIAL-3 assessment contained three areas of content: motor, concepts and language. The developers of the DIAL-3 assessment conducted Rasch item analysis to determine goodness-of-fit of each item. This helped to determine any items not consistent within the assessment. “If the fit to the model is very poor, such items would be candidates for deletion from the test” (Mardell-Czudnowski & Goldenberg, 1998, p. 70). Two types of normative scores were developed: “percentile ranks based on two-month age intervals” and “score ranges at which cutoffs can be applied so as to identify certain percentages of children with potential problems” (Mardell-Czudnowski & Goldenberg, p. 72). As reported by the developers, the internal reliability for the DIAL-3 has been evaluated using coefficient alpha. The coefficient alpha was based on the intercorrelation among all items within a test. (Mardell-Czudnowski & Goldenberg, 1998).

The DIAL-3 median reliability for the total score of the motor skills, concept skills, and language skills is .87. The median reliability of each area of the assessment was lower because they did not have as many items as the total of the DIAL-3. The reliability median for the area of motor skills is .66, which is the lowest of the three areas. Concepts area had a .84 for median reliability and language .77 reliability. The creators of the DIAL-3 also explored the validity of it in relationship to other preschool

assessment instruments to reinforce reliability (Mardell-Czudnowski & Goldenberg, 1998).

Data Collection

Four-hundred-seventy-six pre-kindergarten children were given the DIAL-3 assessment by Parents as Teachers as part of a prescreening of a targeted Title I pre-kindergarten intervention. The assessing occurred between April 2006 and October 2007. Parents of the children initiated the request for their child to participate in this screening process and possible participation in the Title I program. These children initially qualified to be screened for the program due to the location of their home. In order to qualify the children needed to live in a Title I school neighborhood.

The PAT program educators assessed the children, and then a DIAL-3 reporting form was completed with scores. The secretary of the program completed an Excel spreadsheet with all children who participated in the assessment portion of the process. The researcher obtained a list of the children who took the initial assessment to use a benchmark for gathering data. Because the office of PAT did not compile the three sub-components of motor, language, and concepts of the DIAL-3 the researcher referred to each child's form to compile these pieces of data along with the composite score and demographic information such as gender and race. If the children were a participant of the Title I pre-kindergarten program, the information was obtained from the pre-kindergarten classroom teacher. If the child did not participate, then the information was obtained from the PAT office. Some data needed to be obtained from the children's kindergarten school site. Some of the children's pre-assessment could not be located by the office as well as some of the children's post-assessments. Much of the misplaced post

assessments were due to the mobility of the children. The children either moved from the district during the intervention year or did not return with parent to reassess prior to entering kindergarten.

Data Analysis

The data from the DIAL-3 provided by the school district was analyzed. An independent sample *t*-test was conducted on the data to determine if there was a statistically significant difference in the pre-test DIAL-3 composite score of the children who qualified and received intervention services to those who qualified but did not receive services. The statistical package SPSS Version 16.0 was applied to determine differences which might have occurred between the groups (Field, 2005). If the groups' DIAL-3 scores were determined not to be similar before intervention, then a comparison of gain score means will be utilized. If it was determined there was no significant difference in the pre-test DIAL-3 composite score of all children, then the following statistical methods were applied to the five research questions. For all analysis, the independent variables were the intervention Title I pre-kindergarten program or no intervention at all for the children. The dependent variables were the DIAL-3 scores (motor, language, concepts and overall composite). The critical alpha level of .05 was used for all analyses.

Also, after analysis, if it is determined significant differences between the intervention group and non-intervention group, an effect size *d* will be calculated for magnitude. The effect size is the difference between the gain scores means divided by the standard deviation of the two groups (Field, 2005; Patten, 2004). Cohen's effect size label

for values of d suggested 0.20 are small, 0.50 are medium, 0.80 are large, 1.10 are very large and 1.40 + are extremely large (Patten, 2004).

Research Question 1. In order to determine if difference in academic achievement in the areas of motor, concepts, language, or overall composite between all students who received targeted Title I pre-kindergarten services and those children who qualified for the program but did not receive the services, independent sample t -tests were performed for the motor, concepts, language, and overall composite scores.

Research Question 2. In order to determine if there was a significant difference in academic achievement in the areas of motor, concepts, language or overall composite between male students who have received targeted Title I pre-kindergarten services and those male children who qualified for the program but did not receive the services, independent sample t -tests were performed for the motor, concepts, language, and overall composite scores.

Research Question 3. In order to determine if there was a significant difference in academic achievement in the areas of motor, concepts, language or overall composite between female students who have received targeted Title I pre-kindergarten services and those female children who qualified for the program but did not receive the services, independent sample t -tests were performed for the motor, concepts, language, and overall composite scores.

Research Question 4. In order to determine if there was a significant difference in academic achievement in the areas of motor, concepts, language, overall composite between minority students who have received targeted Title I pre-kindergarten services and those minority children who qualified for the program but did not receive the

services, independent sample *t*-tests were performed for the motor, concepts, language, and overall composite scores.

Research Question 5. In order to determine if there was a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between non-minority students who have received targeted Title I pre-kindergarten services and those non-minority children who qualified for the program but did not receive the services, independent sample *t*-tests were performed for the motor, concepts, language, and overall composite scores.

Summary

A review of the literature regarding intervention programs available to children of poverty noted concern for negative effects of poverty. With these effects of poverty on young children's academic development, it was evident little was known about the outcomes of a targeted Title I pre-kindergarten program. No Child Left Behind mandated school districts help children succeed; therefore, it was determined an investigation into the possible outcomes of a Title I pre-kindergarten program.

The goal of this research was to investigate the results of academic achievement with children who were provided Title I intervention, prior to attending their kindergarten year. Therefore, to determine the effectiveness, a comparison of two groups was conducted. All children involved qualified for services, but due to limited program space, all children were not accepted. A multi-criteria process was conducted by the school district to determine those children with the greatest need. The intervention was offered to those children first. The group with greatest need received services while the less needy children did not.

Within chapter three, a review of the methods and research design were explained in-depth. This study was a quantitative design focusing on the comparison of achievement scores of children who received intervention in a Title I pre-kindergarten class to those children who qualified but did not receive services. Data analysis compared the pre and post assessment scores from the DIAL-3 components of motor, language, concepts and overall composites.

In Chapter Four the data collection and analysis results are presented for each research question and hypothesis. A summary of the study, findings, and recommendations and implications for future studies are presented in Chapter Five.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

Introduction

Research has indicated the need for supporting preschool age children in academic development. More specifically, support for preschool age children who live in high poverty homes has been shown to be needed (Farran & Son-Yarborough, 2001; LoCasale-Crouch et al., 2007). There has also been indication from researchers that further studies were needed to determine what effects Title I preschool programs had on advancing children with high academic need (Barnett & Yarosz, 2007; Shaul, 2001; Wong & Nicotera, 2004).

The focus of measure for this study was on academic readiness of children who attended a targeted Title I pre-kindergarten intervention. These children were compared to children who qualified for the intervention but were not classified as greatest need. Thus, they were placed on a waiting list. The study investigated the achievement in the areas of motor skills, mathematical concepts, language and pre-reading skills, and an overall composite. The achievement skills were measured with the Developmental Indicators for the Assessment of Learning (DIAL-3).

Provided in this chapter is a description of the data used for analysis including demographic data of those children who had qualifying data sets. Next, an explanation of analysis of data through independent *t*-tests is given. Additionally, the findings from the five research questions are explained. Finally, a summary of the findings is presented.

Data Entry of Qualifying Students

Data used for this study was preexisting data collected from April 2006 through October 2007. Children were added on to the list for possible placement in the targeted Title I pre-kindergarten program if the children lived in a Title I school neighborhood and were assessed by the Parents as Teachers department. The initial list of data totaled 476 children. The assessment utilized were the motor, language, concepts and overall composite from the DIAL-3.

The data from the DIAL-3 assessment was reviewed by the researcher before statistical analyses were conducted. If DIAL-3 data was missing for a student, that student was excluded from the analyses. Of the 476 children, the number with incomplete information was 156; therefore, their data was not part of the final analysis. There were 320 remaining sets of pre and post DIAL-3 scores that were valid and useful. The 320 complete data sets were entered into Statistical Package for the Social Sciences (SPSS) 16.0 for analysis purposes.

Of the total children with qualifying data sets, the number of female students was 161 and number of male students was 159. Demographic data related to the gender of the children qualifying for Title I intervention with valid scores are shown in Table 1. The majority of the students with qualifying data sets were categorized as non-minority (256 children) with 64 children in the minority category. The demographic data of those children who qualified for Title I intervention with valid scores related to race frequency is shown in Table 2.

Table 1

Frequency of Valid Scores for Demographic Data-Gender (N=320)

Gender	Frequency	Percent
Male	159	49.7
Female	161	50.3
Total	320	100.0

Table 2

Frequency of Valid Scores for Demographic Data-Race (N=320)

Race	<i>f</i>	Percent
Non-Minority	256	80.0
Minority	64	20.0
Total	320	100.0

Data Analysis

Of the 320 students with complete sets of data, 205 children participated in the targeted Title I intervention classroom, while 115 children were placed on the waiting list and were labeled as non-intervention. Demographic data of those students who participated in the intervention and non-intervention within the subgroups of Male, Female, Non-Minority, and Minority is shown in Table 3.

Table 3

Demographic Data of Subgroups

	Intervention	Non-Intervention
Male	100	59
Female	105	56
Non-Minority	167	89
Minority	38	26
Total	205	115

Test for Similarity of Groups

Prior to addressing the research questions, a test for similarity of the intervention group's pre-test scores to those pre-test scores of the non-intervention group's scores was conducted. An independent samples *t*-test was utilized to determine similarity of motor, language, concepts, and over all composite of scores prior to intervention or non-intervention. The results for testing for similarity of groups are shown in Table 4.

Group Pre Motor. The scores on the pre-test for the Motor Subscale were found to be significantly different between the students with targeted Title I intervention and those non-intervention children ($t(202.353)=-3.628; p<.001$). The intervention group had a mean score of 42.43 (s.d.=27.479) while the non-intervention group had a mean score of 55.62 (s.d.=33.088). This indicated the intervention group scored significantly lower on the pre-testing than the group that did not receive intervention.

Table 4

Test for Similarity of Groups (N=320)

	Title I PK	<i>n</i>	M	SD	SE
Pre Motor	Intervention	205	42.43	27.479	1.919
	Non-Intervention	115	55.62	33.088	3.085
Pre Concepts	Intervention	205	42.24	26.746	1.868
	Non-Intervention	115	52.39	31.634	2.950
Pre Language	Intervention	205	41.04	27.091	1.892
	Non-Intervention	115	52.32	32.012	2.985
Pre Overall	Intervention	205	40.16	26.219	1.831
Composite	Non-Intervention	115	54.52	33.155	3.092

Group Pre Concepts. The scores on the pre-test for the Concepts Subscale were found to be significantly different between the students with targeted Title I intervention and those non-intervention children ($t(205.312)=-2.908$; $p<.001$). The intervention group had a mean score of 42.24 (s.d.=26.746) while the non-intervention group had a mean score of 52.39 (s.d.=31.634). This indicated the intervention group scored significantly lower on the pre-testing than the group that did not receive intervention.

Group Pre Language. The scores on the pre-test for the Language Subscale were found to be significantly different between the students with targeted Title I intervention and those non-intervention children ($t(205.466)=-3.191$; $p<.001$). The intervention group

had a mean score of 41.04 (s.d.=27.091) while the non-intervention group had a mean score of 52.32 (s.d.=32.012). This indicated the intervention group scored significantly lower on the pre-testing than the group that did not receive intervention.

Group Pre Overall Composite. The scores on the pre-test for the Overall Composite Subscale were found to be significantly different between the students with targeted Title I intervention and those non-intervention children ($t(194.632)=-3.997$; $p<.001$). The intervention group had a mean score of 40.16 (s.d.=26.219) while the non-intervention group had a mean score of 54.52 (s.d.=33.155). This indicated the intervention group scored significantly lower on the pre-testing than the group that did not receive intervention.

In summary, it was found after analysis of Motor, Concepts, Language and Overall Composite scores, the targeted Title I intervention group and the non-intervention group were significantly different on pre-test scores. Therefore, adjustments for dissimilar pre-test scores were made through gains scores for post test comparisons (Field, 2005).

Research Question Findings

A calculation of gain scores were conducted using pre and post test comparisons. After the gain scores were calculated, a comparison of means using independent samples t -test was conducted. This comparison of post test scores using gain scores of the targeted Title I intervention group and the non-intervention group were used to address the research questions.

Table 5

Comparing Post test Scores Using Gain Scores (N=320)

	Title I PK	n	M	SD	SE
Gain Score Motor	Intervention	205	30.0098	28.24004	1.97237
	Non-Intervention	115	5.4348	29.22092	2.72486
Gain Score Concepts	Intervention	205	25.3854	23.68591	1.65430
	Non-Intervention	115	2.8435	20.00508	1.86548
Gain Score Language	Intervention	205	25.3854	26.10166	1.82302
	Non-Intervention	115	2.3217	20.55141	1.91643
Gain Score Overall	Intervention	205	30.9659	23.09452	1.61299
	Non-Intervention	115	3.0000	20.14160	1.87821

Research Question 1

Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between students who have received targeted Title I pre-kindergarten services and those children who qualified for the program but did not receive the services?

Independent sample *t*-tests were conducted for the motor, concepts, language, and overall composite scores to determine the answers to research question one. Data related to all children who received Targeted Title I intervention ($n=205$) compared to all children who qualified but did not receive the intervention ($n=115$) are shown in Table 5.

Gain Score for Motor. The scores on the gain scores for the Motor Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(318)=7.306$; $p<.001$). The intervention group had a mean score of 30.01 (s.d.=28.24) while the non-intervention group had a mean score of 5.43 (s.d.=29.22). This indicated the targeted Title I intervention group had significantly higher gain scores than the non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.26$).

Gain Score for Concepts. The scores on the gain scores for the Concepts Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(318)=9.041$; $p<.001$). The intervention group had a mean score of 25.39 (s.d.=23.69) while the non-intervention group had a mean score of 2.84 (s.d.=20.01). This indicated the targeted Title I intervention group had significantly higher gain scores than the non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.10$).

Gain Score for Language. The scores on the gain scores for the Language Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(318)=8.720$; $p<.001$). The intervention group had a mean score of 25.39 (s.d.=26.10) while the non-intervention group had a mean score of 2.32 (s.d.=20.55). This indicated the targeted Title I intervention group had significantly higher gain scores than the non-intervention

group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.15$).

Gain Score for Overall Composite. The scores on the gain scores for the Overall Composite Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(318)=11.296$; $p<.001$). The intervention group had a mean score of 30.97 (s.d.=23.09) while the non-intervention group had a mean score of 3.00 (s.d.=20.14). This indicated the targeted Title I intervention group had significantly higher gain scores than the non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be large (Cohen's $d= .92$).

Hypothesis 1

The academic achievement in the areas of motor, concepts, language, and overall composite of all students who have received targeted Title I pre-kindergarten services will be greater with statistically significant difference than all students who qualified for the program but did not receive the services.

The results of the analysis for these measures are presented in Table 5. It was found there were statistically significant differences in the area of motor, concepts, language, and overall composite between all children who received targeted Title I pre-kindergarten intervention and those children who qualified but did not receive the intervention. The effect size reflected a large to very large magnitude in all subgroups with an overall composite effect size of large. Therefore, based on these findings, Hypothesis 1 was supported.

Research Question 2

Is there a significant difference in academic achievement in the areas of motor, concepts, language or overall composite between male students who have received targeted Title I pre-kindergarten services and those male children who qualified for the program but did not receive the services?

Independent sample *t*-tests were conducted for the motor, concepts, language, and overall composite scores to determine the answers to research question two. Data related to male children who received Targeted Title I intervention ($n=100$) compared to those male children who did not receive intervention ($n=59$) are shown in Table 6.

Male Students' Gain Score for Motor. The scores on the gain scores for the Male Motor Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(157)=4.702$; $p<.001$). The intervention group had a mean score of 31.08 (s.d.=27.45) while the non-intervention group had a mean score of 9.59 (s.d.=28.06). This indicated the targeted Title I male intervention group had significantly higher gain scores than the male non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be extremely large (Cohen's $d=1.44$).

Male Students' Gain Score for Concepts. The scores on the gain scores for the Male Concepts Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(157)=5.768$; $p<.001$). The intervention group had a mean score of 24.51 (s.d.=24.35) while the non-intervention group had a mean score of 5.73 (s.d.=16.60). This indicated the targeted Title I male intervention group had significantly higher gain scores than the

male non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.32$).

Table 6

Comparing Male Students' Post test Scores Using Gain Scores (n=159)

	Title I PK	n	M	SD	SE
Gain Score Motor	Intervention	100	31.0800	27.45342	2.74534
	Non-Intervention	59	9.5932	28.05728	3.65275
Gain Score Concepts	Intervention	100	24.5100	24.35408	2.43541
	Non-Intervention	59	5.7288	16.60269	2.16149
Gain Score Language	Intervention	100	25.3400	26.92872	2.69287
	Non-Intervention	59	2.3051	19.49293	2.53776
Gain Score Overall	Intervention	100	31.1600	23.32369	2.33237
	Non-Intervention	59	6.5932	17.63433	2.29579

Male Students' Gain Score for Language. The scores on the gain scores for the Male Language Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(157)=6.225$; $p<.001$). The intervention group had a mean score of 25.34 (s.d.=26.93) while the non-intervention group had a mean score of 2.31 (s.d.=19.49). This indicated the targeted Title I male intervention group had significantly higher gain scores than the male non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.16$).

Male Students' Gain Score for Overall Composite. The scores on the gain scores for the Male Overall Composite Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(157)=7.507; p<.001$). The intervention group had a mean score of 31.16 (s.d.=23.32) while the non-intervention group had a mean score of 6.59 (s.d.=17.63). This indicated the targeted Title I male intervention group had significantly higher gain scores than the male non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.05$).

Hypothesis 2

The academic achievement in the areas of motor, concepts, language and overall composite of male students who have received targeted Title I pre-kindergarten services will be greater with statistically significant differences than those male children who qualified for the program but did not receive the services.

The results of the analysis for these measures are presented in Table 6. It was found there were statistically significant differences in the area of motor, concepts, language, and overall composite between male students who received targeted Title I pre-kindergarten intervention and those male children who qualified but did not receive the intervention. The effect size reflected a very large to extremely large magnitude in all subgroups with an overall composite effect size of very large. Therefore, based on these findings, Hypothesis 2 was supported.

Research Question 3

Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between female students who have received

targeted Title I pre-kindergarten services and those female children who qualified for the program but did not receive the services?

Independent sample *t*-tests were conducted for the motor, concepts, language, and overall composite scores to determine the answers to research question three. Data related to female children who received Targeted Title I intervention ($n=105$) compared to those female children who did not receive intervention ($n=56$) are shown in Table 7.

Female Students' Gain Score for Motor. The scores on the gain scores for the Female Motor Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(159)=5.685$; $p<.001$). The intervention group had a mean score of 28.99 (s.d.=29.06) while the non-intervention group had a mean score of 1.05 (s.d.=30.03). This indicated the targeted Title I female intervention group had significantly higher gain scores than the female non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.11$).

Female Students' Gain Score for Concepts. The scores on the gain scores for the Female Concepts Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(159)=6.965$; $p<.001$). The intervention group had a mean score of 26.22 (s.d.=23.12) while the non-intervention group had a mean score of -0.20 (s.d.=22.81). This indicated the targeted Title I female intervention group had significantly higher gain scores than the female non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be large (Cohen's $d= .94$).

Female Students' Gain Score for Language. The scores on the gain scores for the Female Language Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(159)=6.036; p<.001$). The intervention group had a mean score of 25.43 (s.d.=25.42) while the non-intervention group had a mean score of 2.34 (s.d.=21.79). This indicated the targeted Title I female intervention group had significantly higher gain scores than the female non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.14$).

Table 7

Comparing Female Students' Post test Scores Using Gain Scores (n=161)

	Title I PK	n	M	SD	SE
Gain Score Motor	Intervention	105	28.9905	29.06409	2.83636
	Non-Intervention	56	1.0536	30.02630	4.01243
Gain Score Concepts	Intervention	105	26.2190	23.11758	2.25605
	Non-Intervention	56	-.1964	22.81421	3.04868
Gain Score Language	Intervention	105	25.4286	25.41837	2.48058
	Non-Intervention	56	2.3393	21.78847	2.91161
Gain Score Overall	Intervention	105	30.7810	22.98452	2.24306
	Non-Intervention	56	-.7857	22.01133	2.94139

Female Students' Gain Score for Overall Composite. The scores on the gain scores for the Female Overall Composite Subscale were found to be significantly

different between the students who received targeted Title I intervention and those in the non-intervention group ($t(159)=8.534; p<.001$). The intervention group had a mean score of 30.78 (s.d.=22.98) while the non-intervention group had a mean score of -0.79 (s.d.=22.01). This indicated the targeted Title I female intervention group had significantly higher gain scores than the female non-intervention group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be large (Cohen's $d= .82$).

Hypothesis 3

The academic achievement in the areas of motor, concepts, language and overall composite of female students who have received targeted Title I pre-kindergarten services will be greater with statistically significant differences than those female children who qualified for the program but did not receive the services.

The results of the analysis for these measures are presented in Table 7. It was found there were statistically significant differences in the area of motor, concepts, language, and overall composite between female students who received targeted Title I pre-kindergarten intervention and those female children who qualified but did not receive the intervention. The effect size reflected a large to very large magnitude in all subgroups with an overall composite effect size of large. Therefore, based on findings, Hypothesis 3 was supported.

Research Question 4

Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between minority students who have received

targeted Title I pre-kindergarten services and those minority children who qualified for the program but did not receive the services?

Independent sample *t*-tests were conducted for the motor, concepts, language, and overall composite scores to determine the answers to research question four. Data related to minority children who received Targeted Title I intervention ($n=38$) to those minority children who did not receive intervention ($n=26$) are shown in Table 8.

Minority Students' Gain Score for Motor. The scores on the gain scores for the Minority Motor Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(62)=3.429$; $p<.001$). The intervention group had a mean score of 28.45 (s.d.=29.14) while the non-intervention group had a mean score of 2.15 (s.d.=30.78). This indicated the targeted Title I intervention minority group had significantly higher gain scores than the non-intervention minority group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.17$).

Minority Students' Gain Score for Concepts. The scores on the gain scores for the Minority Concepts Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(62)=4.954$; $p<.001$). The intervention group had a mean score of 28.16 (s.d.=25.12) while the non-intervention group had a mean score of 3.04 (s.d.=15.39). This indicated the targeted Title I intervention minority group had significantly higher gain scores than the non-intervention minority group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be large (Cohen's $d= .99$).

Minority Students' Gain Score for Language. The scores on the gain scores for the Minority Language Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(62)=3.036$; $p<.001$). The intervention group had a mean score of 23.34 (s.d.=30.22) while the non-intervention group had a mean score of 3.54 (s.d.=21.94). This indicated the targeted Title I intervention minority group had significantly higher gain scores than the non-intervention minority group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.33$).

Table 8

Comparing Minority Students' Post test Scores Using Gain Scores (n=64)

	Title I PK	n	M	SD	SE
Gain Score Motor	Intervention	38	28.4474	29.14428	4.72783
	Non-Intervention	26	2.1538	30.77881	6.03622
Gain Score Concepts	Intervention	38	28.1579	25.11544	4.07426
	Non-Intervention	26	3.0385	15.38956	3.01814
Gain Score Language	Intervention	38	23.3421	30.22195	4.90265
	Non-Intervention	26	3.5385	21.94398	4.30357
Gain Score Overall	Intervention	38	30.3158	26.90334	4.36430
	Non-Intervention	26	-.0769	15.98230	3.13439

Minority Students' Gain Score for Overall Composite. The scores on the gain scores for the Minority Overall Composite Subscale were found to be significantly

different between the students who received targeted Title I intervention and those in the non-intervention group ($t(62)=5.656; p<.001$). The intervention group had a mean score of 30.32 (s.d.=26.90) while the non-intervention group had a mean score of -0.08 (s.d.=15.98). This indicated the targeted Title I intervention minority group had significantly higher gain scores than the non-intervention minority group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be large (Cohen's $d= .85$).

Hypothesis 4

The academic achievement in the areas of motor, concepts, language and overall composite of minority students who have received targeted Title I pre-kindergarten services will be greater with statistically significant differences than those minority students who qualified for the program but did not receive the services.

The results of the analysis for these measures are presented in Table 8. It was found there were statistically significant differences in the area of motor, concepts, language, and overall composite between minority students who received targeted Title I pre-kindergarten intervention and those minority children who qualified but did not receive the intervention. The effect size reflected a large to very large magnitude in all subgroups with an overall composite effect size of large. Therefore, based on findings, Hypothesis 4 was supported.

Research Question 5

Is there a significant difference in academic achievement in the areas of motor, concepts, language, or overall composite between non-minority students who have

received targeted Title I pre-kindergarten services and those non-minority children who qualified for the program but did not receive the services?

Independent sample *t*-tests were conducted for the motor, concepts, language, and overall composite scores to determine the answers to research question five. Data related to non-minority children who received Targeted Title I intervention ($n=167$) to those non-minority children who did not receive intervention ($n=89$) are shown in Table 9.

Non-Minority Students' Gain Score for Motor. The scores on the gain scores for the Non-Minority Motor Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(254)=6.386; p<.001$). The intervention group had a mean score of 30.37 (s.d.=28.11) while the non-intervention group had a mean score of 6.39 (s.d.=28.86). This indicated the targeted Title I intervention non-minority group had significantly higher gain scores than the non-intervention non-minority group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.29$).

Non-Minority Students' Gain Score for Concepts. The scores on the gain scores for the Non-Minority Concepts Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(254)=7.606; p<.001$). The intervention group had a mean score of 24.75 (s.d.=23.38) while the non-intervention group had a mean score of 2.79 (s.d.=21.24). This indicated the targeted Title I intervention non-minority group had significantly higher gain scores than the non-intervention non-minority group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d= 1.13$).

Table 9

Comparing Non-Minority Students' Post test Scores Using Gain Scores (n=256)

	Title I PK	n	M	SD	SE
Gain Score Motor	Intervention	167	30.3653	28.10787	2.17505
	Non-Intervention	89	6.3933	28.86001	3.05916
Gain Score Concepts	Intervention	167	24.7545	23.38145	1.80931
	Non-Intervention	89	2.7865	21.24022	2.25146
Gain Score Language	Intervention	167	25.8503	25.14958	1.94613
	Non-Intervention	89	1.9663	20.24310	2.14576
Gain Score Overall	Intervention	167	31.1138	22.22622	1.71992
	Non-Intervention	89	3.8989	21.19822	2.24701

Non-Minority Students' Gain Score for Language. The scores on the gain scores for the Non-Minority Language Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(254)=8.245$; $p<.001$). The intervention group had a mean score of 25.85 (s.d.=25.15) while the non-intervention group had a mean score of 1.97 (s.d.=20.24). This indicated the targeted Title I intervention non-minority group had significantly higher gain scores than the non-intervention non-minority group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be very large (Cohen's $d=1.10$).

Non-Minority Students' Gain Score for Overall Composite. The scores on the gain scores for the Non-Minority Overall Composite Subscale were found to be significantly different between the students who received targeted Title I intervention and those in the non-intervention group ($t(254)=9.618; p<.001$). The intervention group had a mean score of 31.11 (s.d.=22.23) while the non-intervention group had a mean score of 3.90 (s.d.=21.20). This indicated the targeted Title I intervention non-minority group had significantly higher gain scores than the non-intervention non-minority group. In addition, the effect size was calculated (Field, 2005; Patton, 2004) and determined to be large (Cohen's $d= .95$).

Hypothesis 5

The academic achievement in the areas of motor, concepts, language and overall composite of non-minority students who have received targeted Title I pre-kindergarten services will be greater with statistically significant differences than those non-minority students who qualified for the program but did not receive the services.

The results of the analysis for these measures are presented in Table 9. It was found there were statistically significant differences in the area of motor, concepts, language, and overall composite between non-minority students who received targeted Title I pre-kindergarten intervention and those non-minority children who qualified but did not receive the intervention. The effect size reflects a large to very large magnitude in all subgroups. The effect size reflected a very large magnitude in all subgroups with an overall composite effect size of large. Therefore, based on findings, Hypothesis 5 was supported.

Summary

The focus of measure for this study was on readiness of children who attended a targeted Title I pre-kindergarten class a year prior to entering kindergarten. The purpose of the study was to investigate the achievement in the areas of motor skills, mathematical concepts, language and pre-reading skills, and an overall composite of those students. Comparisons of those children who received the intervention to those who did not were conducted using independent sample *t*-tests. The achievement skills were measured with the DIAL-3.

After sorting the original data of 476 students, it was determined 156 students were missing data and were not included in the analysis. With 320 sets of pre and post DIAL-3 scores, first the children were separated by those who did receive targeted Title I intervention and those who did not. This division of children was not done by the researcher but done by the district based on greatest need of children. Of the 320 children, 205 received the Title I intervention and 115 did not. The demographic data was shown on Table 1, Table 2, and Table 3.

An analysis was conducted to determine if prior to intervention the group which received intervention was similar to the group who did not receive intervention. The results, as shown on Table 4, indicated there was a significant difference; therefore, a comparison of the post test scores using gain scores was needed. The gain scores found using independent sample *t*-tests were utilized to determine answers to the five research questions. Based on the data (see Table 5), it was determined there were significant differences in the subscale areas of Motor, Concepts, Language, and Overall Composite between the children who received targeted Title I pre-kindergarten intervention and

those children who did not. It was also determined there were significant differences in the all subscales between male children with intervention (see Table 6) and male children with non-intervention; female children with intervention (see Table 7) and female children of non-intervention; minority children with intervention (see Table 8) and minority children of non-intervention; and non-minority children with intervention (see Table 9) and non-minority children of non-intervention.

All areas of the motor, language, concepts, and overall composite were significantly different between those children who received targeted Title I and those children who qualified but did not including all subgroups of children. Because of this determination, the effect size was calculated to identify the magnitude of the difference. With regards to all children who received intervention compared to children who were in the non-intervention group, the effect size reflected a large to very large magnitude in all subgroups with an overall composite effect size of large. With regards to male children who received intervention compared to male children in the non-intervention group, the effect size reflected a very large to extremely large magnitude in all subgroups with an overall composite effect size of very large. With regards to female children who received intervention compared to female children in the non-intervention group, the effect size reflected a large to very large magnitude in all subgroups with an overall composite effect size of large. With regards to minority children who received intervention compared to those minority children in the non-intervention group, the effect size reflected a large to very large magnitude in all subgroups with an overall composite effect size of large. Finally, with regards to non-minority children who received intervention compared to

non-minority children who were in the non-intervention group, the effect size reflected a very large magnitude in all subgroups with an overall composite effect size of large.

In Chapter five, findings of the study will be further discussed. The limitations of the study will also be identified along with implications for practice. Finally, recommendations for future research will be provided.

CHAPTER FIVE

SUMMARY AND RECOMMENDATIONS

Introduction

As reviewed in the literature, Title I programs were established to help with developmental delays of children from poverty. The passage of No Child Left Behind (NCLB) in 2001, by President George W. Bush, invoked a new responsibility for leaders in the educational arena. All children were expected to be proficient in reading and mathematics by third grade or the school district would be under the penalties of the state and federal educational systems. The purpose of the reform was to hold school districts' educational systems more accountable for all children.

The focus of measure for this study was on the academic effects of children who attended a targeted Title I pre-kindergarten intervention program compared to those children who qualified but did not receive this intervention. The focus of achievement was in the areas of mathematical concepts, language and pre-reading skills, motor skills and an overall composite of those students as measured by the Developmental Indicators for the Assessment of Learning (DIAL-3). The children's achievements in these areas were gathered prior to the intervention program. Two nonrandom groups were established prior to the study. One group received intervention services due to high academic need, while one group qualified but did not participate. The study was conducted to determine if the children who participated made significant improvements compared to those children who did not participate.

Within this chapter, an overview of the evaluation of a targeted Title I preschool program will be provided. First, a review of the purpose of the study including the

description of the evaluation of a Title I pre-kindergarten program as outlined by Patton (1998). This study was an evaluation of a program meant to advance students who are behind academically prior to entering kindergarten. Next, in this chapter, a summary of the findings and limitations of the study are presented. Finally, the implications for practice and recommendations for future research are given.

Purpose of the Study

The purpose of this study was to determine if a targeted Title I pre-kindergarten intervention program advanced the children's academic achievement significantly as compared with those children who qualified but did not participate in the program. A quasi-experimental design was chosen to explore the cause and effect design of a school-based targeted Title I program that included two non-random groups of children. As suggested by the Committee on Governmental Affairs (Shaul, 2001), research needed to be conducted in order to determine the effects on children's performance.

Following the recommendations of researchers (Barnett & Yarosz, 2007; Borman, 2000; Farran & Son-Yarborough, 2001; Shaul, 2001; Wong & Nicotera, 2004), to conduct additional research on the impact Title I had on pre-kindergarten children, a quasi-experimental evaluation was conducted. A comparison of children, who participated in a targeted Title I pre-kindergarten program with those who qualified but did not attend the program, was made. The purpose was to determine the effectiveness of the Title I program in advancing children academically. A program evaluation of a targeted Title I program was utilized (Patton, 1998).

Program Evaluation

Patton (1997) introduced a framework for supporting school organizations in evaluating programs to determine if those programs were effective in meeting the goals intended to be met. This program evaluation was the conceptual framework used with this study. The purpose for evaluating a targeted Title I program is “to inform decisions, clarify options, identify improvements, and provide information about programs and policies within contextual boundaries of time, place, values, and politics” (Patton, p. 24).

Outlined by Patton (1997) was a three-component definition, explaining an efficient program evaluation. As defined by Patton, an evaluation should include a systematic procedure for collecting data, variety of concepts tested, and multiple purposes for the evaluation.

First, the collection of data was systematic in nature. Within this study of targeted Title I intervention comparison, a systematic procedure for collecting data was fulfilled. The researcher compiled the gender, race, DIAL-3 pre and post data to an Excel spreadsheet with no identifiable markings traced back to children was kept. The data was exported to SPSS 16.0 for analysis and evaluation purposes.

Secondly, within the evaluation process, a variety of concepts or topics were tested. This allowed a bigger picture of the program’s effectiveness. Within this study, five research questions were addressed. As part of each research question, motor, concepts, language and overall composite of the DIAL-3 was used. This allowed for a variety of concepts to be tested along with the children subgroups of gender and race. Independent sample *t*-test analyses were conducted on the variety of concepts using SPSS version 16.0.

Finally, Patton (1997) included the notion that an evaluation of a program should have more than one reason for uses of the information obtained. Uses for the information could include goal attainment, unanticipated consequences, or any long-term impacts of the program (Patton). The main goal of the study was to determine the effectiveness of a targeted Title I intervention program on significantly improving academic achievement of children. It is believed this goal was attained. Also with this study, future studies could determine long-term impacts.

This study utilized the program evaluation framework of Patton (1997) to evaluate a targeted Title I pre-kindergarten intervention program. All three components outlined by Patton were followed in order to determine effectiveness of the pre-kindergarten program. The following portions of this chapter will describe the findings of the study, limitations, implications for practice, and possible future research.

Findings of the Study

Of the 320 students with complete sets of data, 205 children participated in the targeted Title I intervention classroom, while 115 children were placed on the waiting list and were labeled as non-intervention. Table 10 models a summary of the findings after statistical analysis was conducted with the DIAL-3 data gathered on children who attended a targeted Title I pre-kindergarten program and those children who were eligible but did not attend.

It was found, with statistical significance, targeted Title I pre-kindergarten intervention program had a strong effect on the academic outcomes of motor, concepts, language, and overall composite of all children who attended compared to children who qualified but did not attend (see Table 5). With these results Hypothesis 1 was supported.

Table 10

Findings Summary

Research Question	DIAL-3 Subgroups	Statistically Significant		Gain Score Effect Size
		Yes	No	
1. Difference between all children with intervention and all children without	Motor	X		Very large
	Concepts	X		Very large
	Language	X		Very large
	Overall Composite	X		Large
2. Difference between male children with and male children without intervention	Motor	X		Extremely large
	Concepts	X		Very large
	Language	X		Very large
	Overall Composite	X		Very large
3. Difference between female children with and female children without intervention	Motor	X		Very large
	Concepts	X		Large
	Language	X		Very large
	Overall Composite	X		Large
4. Difference between minority children with and minority children without intervention	Motor	X		Very large
	Concepts	X		Large
	Language	X		Very large
	Overall Composite	X		Large
5. Difference between non-minority children with and non-minority children without intervention	Motor	X		Very large
	Concepts	X		Very large
	Language	X		Very large
	Overall Composite	X		Large

It was found with, statistical significance, targeted Title I pre-kindergarten intervention program had a strong effect on the academic outcomes of motor, concepts, language, and overall composite of male children who attended compared to those male children who did not attend (see Table 6). With these results Hypothesis 2 was supported.

It was found, with statistical significance, targeted Title I pre-kindergarten intervention program had a strong effect on the academic outcomes of motor, concepts, language, and overall composite of female children who attended compared to those female children who did not attend (see Table 7). With these results Hypothesis 3 was supported.

It was found, with statistical significance, targeted Title I pre-kindergarten intervention program had a strong effect on the academic outcomes of motor, concepts, language, and overall composite of minority children who attended compared to those minority children who did not attend (see Table 8). With these results Hypothesis 4 was supported.

It was found, with statistical significance, targeted Title I pre-kindergarten intervention program had a strong effect on the academic outcomes of motor, concepts, language, and overall composite of non-minority children who attended compared to those non-minority children who did not attend (see Table 9). With these results Hypothesis 5 was supported.

Limitations

Although steps were taken to minimize effects of possible limitations on the study, there were several within this study worth noting.

1. The only assessment instrument used to collect data was the DIAL-3. This is pre-existing archival data that was not monitored by the researcher as to how the assessment was conducted and data gathered.
2. The selection of children was determined based on the parents' desire for their children to attend the program.
3. Due to the selection into the groups of either participating or not, based on greatest need of children, the study was limited to a quasi-experimental study.
4. The non-intervention group may have received some other services such as Head Start. Limitations were placed on the researcher to determine what support, if any, these children of the non-intervention group may have received during their pre-kindergarten year.

To minimize the errors associated with documenting the scores, the researcher worked back as close to the original documentation as allowed by the district. This was important to the researcher too, because the district providing the data, did not initially compile all components studied for this research. In addition, to ensure the reporting of race and gender the researcher cross referenced this information with the district's database for collaboration purposes.

In order to reduce the concern of non random groups, a comparison of the groups' pre-test scores was conducted to determine if the groups were actually statistically similar prior to intervention. It was determined the groups were statistically different (see Table 4). Therefore, the score sets were calculated for mean gains. After the calculations, the intervention group and the non-intervention group were compared using gain scores.

Implications for Practice

As NCLB mandates greater accountability on program effectiveness, school district leaders must gather all available data to make informed decisions on what Title I programs to support. These new demands on school districts with Title I funds necessitates leaders to reevaluate how teaching and learning are done in order to maximize the achievement of all students, regardless of the children's economic status. Yukl (2006) highlighted the need for effective leadership in order to facilitate the adaptation to changing environments initiated by outside forces. This study contributed to the knowledge base regarding benefits of early intervention programs for children living in low-income families. The knowledge gained from this study will inform those decision-making leaders of the effectiveness of the Title I pre-kindergarten programs.

The goal of a Title I program was to improve the academic achievements of those children of poverty while also meeting the requirements of NCLB (USDE, 2004a). There are many options for a school district in implementing Title I funds. Therefore, it is necessary for leaders to make sure those funds are utilized in the most effective and efficient way possible (Patton, 1998). Based on the results of this study, it would benefit children of academic need living in poverty, if interventions were available prior to entering kindergarten.

As it stands, NCLB mandates states to monitor children's academic performance in grades three through twelve. When targeting these grades, it becomes tempting for school districts with limited funds to only focus the additional Title I support to those age children. School district's decision makers will need to weigh the options carefully and decide if resources should only be targeting the grades to be assessed or funnel resources

to the lower level aged children (Boreman, 2000; Holland, 2007). The money might be better spent with greater payoff in the long run. It is a suggestion that districts begin or sustain academic support for children years before the state assessment requires it under NCLB.

No Child Left Behind was established to make sure no subgroups in academic need were left out of educational support. It was required by states to begin providing data on children subgroups, such as race, so these groups would not be academically neglected (USDE, 2004a). It is a recommendation by the researcher that school districts not wait for the state to provide data on children in grades three through twelve. School districts should be determining if subgroups such as gender and race are in need of support as young as pre-kindergarten age or younger if possible. With this information, personnel can begin to provide the necessary support to these children so intervention can begin before they fall too far behind their non-struggling peers (NAEYC, 1995; Reynolds & Robertson, 2003).

Recommendations for Future Research

As Farran and Son-Yarborough (2001) warned, school districts should not rush too quickly into implementing a preschool program without proper evaluation of all components of that program. This study provided evaluation of the academic outcome of a targeted Title I pre-kindergarten intervention program. Additional components for further study will be addressed in this section.

This study provided the determination that targeted Title I pre-kindergarten intervention programs were advancing children significantly. Further investigation into this phenomenon would be beneficial. Is the effectiveness of this program only in this

one school district or is this success due to the mandates of NCLB preschool requirements (MODESE, 2006)? Because the implementation of Title I pre-kindergarten programs are growing faster than can be studied, a larger scale research project may benefit the decision of effectiveness as well as for replication purposes for other districts.

An additional suggestion for future research would be a longitudinal study of this set of children. The reasons the children initially fell behind academically, such as poverty, could still be affecting the children. With such outside circumstances, it would be important to determine what long term effects the targeted Title I program has on the children's success. A question of whether the children fall behind again or whether the children sustain success should be determined.

Next, further data could be gathered to determine what support the non-intervention children received prior to kindergarten. It was unknown by the researcher if the children on the waiting list attended Head Start, a private pre-kindergarten or stayed at home. This information would support additional disaggregation as to how much help the non-intervention group received, if any. This data could be analyzed to determine if other interventions are as supportive or whether the intervention actually was a detriment.

Finally, the evaluation results of this study could be used as a baseline for a follow-up comparative studies of Title I pre-kindergarten effectiveness. The district which provided this data had not had an extensive study of their Title I pre-kindergarten program in the past. This data could be utilized to determine if the significance found in this study would be consistent through-out the years.

Discussion

Researchers have announced a need for further research to be conducted to determine the effectiveness of Title I preschool programs (Farran & Son-Yarborough, 2001; LoCasale-Crouch et al., 2007; Wong & Nicotera, 2004). Shaul (2001) furthered the announcement by explaining a comparison study should be conducted of those children who do receive Title I services in pre-kindergarten to those who do not. This study contributed to the body of knowledge requested by the above researchers.

As stated previously in the literature portion of this paper, NAEYC (1995) stated “high-quality early education programs provide the foundation for school readiness and must be available to all young children and families” (p. 1). Based on the findings from this study, it would be secure to state targeted Title I pre-kindergarten programs can provide that foundation children need for readiness of kindergarten. In addition, providing the Title I program to high poverty families gave children access to learning they may not have had otherwise (NAEYC, 1995; LoCasale-Crouch et al., 2007).

The targeted Title I program studied for this paper had similarities as the Carolina Abecedarian, Chicago Child-Parent Centers, and High/Scope Perry Preschool Project programs reviewed in the literature portion of this paper. These programs were found to be as effective as the Targeted Title I pre-kindergarten program. The difference between this program and the others was the feasibility to duplicate the program. It was noted by Barnett and Yarosz (2007) that the Carolina Abecedarian, Chicago Child-Parent Centers, and High/Scope Perry Preschool Project the other programs were too involved; therefore, as noted by Christina and Nicholson-Goodman (2005), those programs came with a high cost in order to provide the highly intensified intervention. Thus, there programs are

virtually impossible for states to replicate. In contrast, the targeted Title I program would be supported by Title I federal funds and can be replicated without much difficulty (Barnett et al., 2004).

The notion of focusing federal Title I dollars to support the pre-kindergarten age children instead of older children could be supported by this study. Farran and Son-Yarborough (2001) had warned districts of not implementing pre-kindergarten programs without the evidence of effectiveness. In addition, LoCasale-Crouch et al. (2007) noted since state funded, pre-kindergarten programs focus on improving the academics of children of poverty, then an evaluation of the program's quality should be explored. With this study, a program evaluation was conducted to determine if there was effectiveness in advancing children of poverty with improving their academics. It was found, with statistical significance, the targeted Title I pre-kindergarten program did advance the children who participated compared to those children who qualified but did not participate.

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VITA

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