# THE PARENTS AS TEACHERS PROGRAM IN MISSOURI AND THE RESULTING DIFFERENCE IN ACADEMIC EFFECTS FOR FIFTH- AND SIXTH-GRADE STUDENTS

by

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ABSTRACT

Jill Mayes Arnold. THE PARENTS AS TEACHERS PROGRAM IN MISSOURI AND THE RESULTING DIFFERENCE IN ACADEMIC EFFECTS FOR FIFTH- AND SIXTH-GRADE STUDENTS. (Under the direction of Dr. Karen Parker, Dean of Education) School of Education, Liberty University, May, 2012.

Due to No Child Left Behind legislation, state education officials are increasing programs and funding for early childhood interventions. Missouri's Parents as Teachers Program (PAT) is one such program that works to increase students' academic achievement in school and on standardized tests. This study explored one Missouri school district's academic achievement for current fifth- and sixth-grade students on the kindergarten entry screening, the Developmental Indicators for the Assessment of Learning Third Edition (DIAL-3), and the Missouri Assessment Program's (MAP) third and fourth grade Communication Arts test. The research employed a causal-comparative research design that matched 89 PAT participants with 89 non-PAT participants on three designated characteristics. Two-tailed *t* tests with a 0.05 alpha level were utilized in the analysis of this study. The results of this study found that PAT participants did score higher on all of the assessments, but the score difference between PAT participants and the non-PAT participants was not significant.

Descriptors: early childhood education, Parents as Teachers Program, preschool intervention, Missouri.

## Dedication Page

I dedicate this dissertation to my husband, Todd, and my two wonderful boys, Connor and Jay. Without their unending support and patience through this process, I would never have succeeded in completing this dissertation.

I also want to thank my parents for their guidance in my educational endeavors and as my educational sounding board throughout my life. A special thanks to my mother for endless phone calls and emails to help me think through this research! My parents-in-law and many other people have also given their time and effort to allow me to finish my research on this project.

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My last dedication for this dissertation is to my Lord, Jesus Christ. My faith in Jesus has been guiding me throughout my career in education. He has known where I belonged in the world, and even though I fought being a teacher, I know God has led me to this place.

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# CHAPTER ONE: INTRODUCTION

With the implementation of the No Child Left Behind Law of 2001, early childhood education became an emphasized area for academic intervention. Due to the short amount of time school districts have until students reach the third grade requirement of all students reading on grade level, many states implemented statewide early childhood programs (Gormley & Gayer, 2005, Gormley, Phillips, & Gayer, 2008, Iowa Department of Education, 2011). This quantitative causal-comparative study examined the universal early childhood intervention, the Parents as Teacher Program (PAT), in one school district in the state of Missouri. This dissertation provided a comparison of current fifth- and sixth-grade students who participated in the PAT Program with those who did not participate in the PAT Program on their academic achievement on the Developmental Indicators for the Assessment of Learning Third Edition (DIAL-3) entry tests and their third and fourth grade Missouri Assessment Program (MAP) Communication Arts scores.

## Background

Historically, early childhood education has been an avenue to educating young children. The need to equalize academic skills in children before the child entered school empowered educators to intervene with educational measures in the early years of a child's life in the United States beginning in the 1880s (Beatty, 1995). The first early education programs involved children who were economically disadvantaged, lacked formal schooling and parental involvement, and had mothers who entered the workforce (Beatty, 1995; Kamerman & Gatenio, 2003). Preschool was born in the United States with this initiative in the 1880s.

The United States continued preschools, kindergartens, and nursery schools to enhance the lives of young children. In the 1920s, there was a significant increase in early child care due to more people in the middle-class in the United States (Beatty, 1995). Early childhood programs also saw another significant boost in enrollment during World War I and World War II when many more mothers joined the workforce (Beatty, 1995).

In the Elementary and Secondary Act of 1965, the Head Start mandate was the first federal initiative to tie federal funds to a preschool program. The focus of this preschool mandate was to include comprehensive interventions for each child to impact every participant's well-being as children and as adults. In a social context, preschools gave children assistance in socially cooperating and learning with their peers in the early childhood environment. Children needed support in their learning through first acquiring speech and then concepts from more trained or knowledgeable individuals within the children's zone of proximal development (ZPD) (Vygotsky, 1978). A second purpose of federal legislation was to increase the academic and social performances of children who came from low socioeconomic backgrounds to the level of academic and social performances of children from middle to high-socioeconomic backgrounds before entering elementary school (McWayne, Green, & Fantuzzo, 2009; United States of Representatives, 2003; Zigler & Valentine, 1979).

In the last twenty years to the present, national mandates of Goals 2000 (1994) and No Child Left Behind (2008) pressured schools to academically perform in order to receive federal funds. No Child Left Behind states that all children be proficient in reading and math by the end of third grade (NCLB, 2008). To meet the demands of

NCLB (2008), schools are seeking more interventions in early childhood to close the achievement gap to meet these high criteria.

The No Child Left Behind Law (2008) challenges educators to prepare students to be proficient in reading with only four years of elementary school to instruct and support children to be reading on grade level. School districts are looking to universal preschool interventions that are not only cost effective to achieve the mandates of No Child Left Behind (2008), but have sustained academic effects on academic achievement throughout school (Gormley & Gayer, 2005). For 25 years, the Parents as Teachers Program (PAT) has been operating in Missouri and has been studied at the state level (Zigler, Pfannenstiel, & Seitz, 2008). By studying the program at the school district level, administrators in the Eagle School District (a pseudonym for this study) can evaluate the effectiveness of the services provided by the PAT Program. With state and local officials cutting funds in school budgets, it is important that programs affecting sustained academic change are kept and utilized by educators to meet federal standards and to facilitate children in their learning process. By completing this study, administrators at the Eagle School District will have an evaluation of the sustained academic impact of their PAT Program. A positive academic achievement was found from participation in the program, but the positive change was not significant. It will be up to administrators in the Eagle School District to decide if local funds should be used to support the monetary cuts to the PAT Program from the state of Missouri from the non-significant results found in this study.

Evaluating the Missouri PAT program at the state level began in 1989 with a study of the first four sites to implement the program (Pfannenstiel & Seltzer, 1989). The

purpose of the quasi-experimental study was to measure the effects of the program on three-year-olds. After completion of the study, the PAT Program was shown to have a significant, positive, direct increase in intellectual, achievement, language, and social capabilities of three-year-olds who participated in the PAT Program versus the non-PAT group (Pfannenstiel & Seltzer, 1989). A second wave study and the longitudinal follow-up to the second wave study showed that PAT participants scored significantly higher on an achievement measure, the School Entry Profile, than the norms on the assessments (Pfannensteil, Lambson, & Yarnell, 1991; Pfannenstiel, Lambson, & Yarnell, 1996).

School districts use school readiness screenings to identify children with potential delays and to ascertain academic potential for incoming kindergarten students (Kagan, 2003; Shepard, 1997). These screenings also evaluate the effectiveness of early childhood programs (Kagan, 2003). Professionals in early childhood education created a school readiness assessment, the School Entry Profile, for the PAT studies (Pfannenstiel, Seitz, & Zigler, 2003; Zigler, Pfannenstiel, & Seitz, 2008). This assessment was a survey that was completed by each child's kindergarten teacher and could only be used for statewide scoring purposes as a reliable or valid instrument, but could not be used as a reliable or valid instrument for individual or school-level assessments (Pfannenstiel et al., 2003; Zigler et al., 2008). The school readiness assessment, the School Entry Profile, for both the second wave and the follow-up study was a researcher-constructed teacher observation evaluation that utilized the concepts emerging from national legislation to assess certain content and performance standards in language and mathematics (Pfannenstiel et al., 1991; Pfannenstiel et al., 1996).

The impact of the PAT Program on school readiness has also been studied in Missouri's state PAT program. Using a school readiness assessment at kindergarten entry, researchers found that students who participated in the PAT Program in low and high poverty schools scored higher on the MAP Communication Arts assessment than children who had no PAT intervention or had only a preschool intervention without the PAT Program (Pfannenstiel, et al., 2003). The use of the MAP test indicated the sustained effect of the PAT program in participants. The findings from the study illustrated that the most significant predictor of third grade achievement was the participants' scores on the School Entry Profile assessment at kindergarten entry (Zigler, Pfannenstiel, & Seitz, 2008).

To further knowledge about academic change from participation in the PAT Program, a standardized benchmark for early childhood academic achievement, the Developmental Indicators for the Assessment of Learning Third Edition (DIAL-3), was included in the study. The DIAL-3 is different from the School Entry Profile in assessing kindergarten students, because the DIAL-3 is a valid and reliable school readiness assessment that can be used with individual students. "The DIAL–3 is a standardized test that assesses motor, language and conceptual skills related to school readiness. These skills are considered the foundation of academic learning and are related to success in the classroom" (Brotman et al., 2011, p. 265). The DIAL-3 is an assessment with specific questions and a script used by trained professionals to assess preschool students (Mardell-Czudnowski & Goldenburg, 1998; Spagnola, 2009). The School Entry Profile is a teacher-rated assessment with 65 questions on each child's ability (DESE, 1999). The DIAL-3 is an interactive assessment that utilizes activities that children complete with

oral or physical movement while they are scored by a trained DIAL-3 test administrator (Mardell-Czudnowski & Goldenburg, 1998).

To effectively study the PAT Program at the district level, a quasi-experimental causal-comparative design was used to determine if current fifth- and sixth-grade students who participated in the PAT Program in the Eagle School District acquire higher scores on the school readiness screening, the DIAL-3 composite score, and the third and fourth grade MAP Communication Arts tests. To account for threats to validity, the PAT participants were paired with non-PAT participants on three factors: socioeconomic status, gender, and ethnicity.

## Problem Statement

Schools in the United States are trying to meet the No Child Left Behind of 2001 (2008) standard of each child reading on grade level by the end of third grade and for academic achievement to continue through the student's school career. In Missouri, school districts are trying to find interventions before third grade that positively raise reading competency. Research-proven interventions that can support further literacy achievement need to be identified by schools. One research study exists on the positive educational outcomes achieved by students on the third grade Communication Arts MAP test who participated in the Parents as Teachers Program (Zigler et al., 2008).

Local school districts are struggling with smaller education budgets. The Parents as Teachers Program has experienced severe cuts from $34 million in 2009 to $16 million projected for 2012-2013 fiscal year (Office of Administration (OA), 2009; OA, 2010; OA, 2011; OA, 2012). Local support for the program may need to be implemented by school districts if the districts want to continue to use the program. Therefore, it is

important to examine the impact on academic achievement from the Eagle School District's Parents as Teachers Program to certify that participants in the program have benefitted from the intervention.

Reliable and valid research must be conducted on programs to evaluate their effectiveness within school districts. Using standardized measures and assessments in research allows significant academic achievement to be identified in education programs. Research has shown that an important measure of early childhood programs is school readiness assessments. School readiness assessments are also a predictor of future achievement in school. While research exists on the PAT Program's academic improvements from participants as shown on school readiness exams and the Communication Arts MAP test, further research that uses standardized measures on school readiness and illustrates the sustained academic effect of the program is needed (Pfannenstiel & Seltzer, 1989; Pfannenstiel et al., 1991; Pfannenstiel et al., 1996; Pfannenstiel et al., 2003; Zigler et al., 2008).

## Purpose Statement

The purpose of this causal-comparative study was to establish whether or not a significant difference exists between DIAL-3 composite scores, a standardized school readiness measure, and the third and fourth grade MAP Communication Arts assessments, a literacy achievement exam, for current fifth- and sixth-grade students who participated in Eagle's Parents as Teachers Program as compared to those students who did not participate in Eagle's Parents as Teachers Program. To compare these students in academic achievement, students who did not participate in the Eagle's Parents as

Teachers Program were matched on socioeconomic status, gender, and ethnicity with participating PAT participants.

## Significance of the Study

The findings from this study did not prove to be statistically significant, but the research conducted will add to the literature on the academic achievement of students who participate in Parents as Teacher Program in the state of Missouri. The only researchers who have quantitatively evaluated the PAT program in terms of academic achievement using state standards are the researchers Zigler, Pfannenstiel, Seltzer, and Seitz (Pfannenstiel & Seltzer, 1989; Pfannenstiel et al., 1991; Pfannenstiel et al., 1996; Pfannenstiel et al., 2003; Zigler et al., 2008). These researchers were subsidized by the state of Missouri's Education Department for their research (Zigler et al., 2008). This study was conducted by an independent researcher not subsidized by the state of Missouri.

The research findings were significant to the field of education because they quantifiably measured the PAT participants on third and fourth grade Communication Arts scores on the MAP. Building on the 2008 study's (Zigler et al., 2008) use of the third grade MAP Communication Arts assessment, this research included the fourth grade Communication Arts MAP scores for two classes of students. This fourth grade assessment was added to evaluate the sustained literacy effect of the Eagle School District's Parents as Teachers Program.

By implementing a standardized kindergarten entry assessment, the Developmental Indicators for the Assessment of Learning Third Edition (DIAL-3), the study employed a nationally used and standardized measure of academic achievement

(Brotman et al., 2011; Mardell-Czudnowski & Goldenburg, 1998). Previous PAT research only used the School Entry Profile for a school readiness indicator, and this assessment is only valid and reliable when used in a statewide study (DESE, 1999; Pfannenstiel et al., 2003; Zigler et al., 2008). The DIAL-3 is an assessment that is used in many school districts to individually assess a child's school readiness before school entry. Applying the DIAL-3 assessment to this study aided the Eagle School District in evaluating previous preschool knowledge on children who participated in the PAT program and children who did not participate in the PAT Program. The findings from this study could also help other school districts analyze progress made from students enrolled in the PAT program at their respective schools.

The research has merit to the education community. With the increased pressure from mandates such as No Child Left Behind (2008), educators must close the achievement gap by the end of third grade. Students must be reading on grade level by 2014.

## Research Questions

Three research questions were proposed:

1. Do currently enrolled fifth- and sixth-grade students who participated in the Eagle's Parents as Teachers Program show a significant difference on the school readiness screening, the DIAL-3 composite score, when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program?
2. Do currently enrolled fifth- and sixth-grade students who participated in the Eagle's Parents as Teachers Program show a significant difference on the 3rd

grade MAP Communication Arts test when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program?

3. Do currently enrolled fifth- and sixth-grade students who participated in the Eagle's Parents as Teachers Program show a significant difference on the 4th grade MAP Communication Arts test when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program?

## Research Hypotheses

The research hypotheses were the following:

H1: There will be a statistically significant difference in DIAL-3 composite scores for fifth- and sixth-grade students who participated in the Eagle Parents as Teacher participants when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program.

H2: There will be a statistically significant difference in third grade MAP Communication Arts scores for fifth- and sixth-grade students who participated in the Eagle Parents as Teacher participants when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program.

H3: There will be a statistically significant difference in fourth grade MAP Communication Arts scores for fifth- and sixth-grade students who participated in the Eagle Parents as Teacher participants when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program.

## Null Hypotheses

To achieve the purposes of this study, three null hypotheses were proposed:

H1: There will be no statistically significant difference in DIAL-3 composite scores for fifth- and sixth-grade students who participated in the Eagle Parents as Teacher participants when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program.

H2: There will be no statistically significant difference in third grade MAP Communication Arts test composite scores for fifth- and sixth-grade students who participated in the Eagle Parents as Teacher participants when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program.

H3: There will be no statistically significant difference in fourth grade MAP Communication Arts test composite scores for fifth- and sixth-grade students who participated in the Eagle Parents as Teacher participants when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program.

# Definition of Terms

## Parents as Teachers (PAT) Program

The Parents as Teachers (PAT) Program started in Missouri in 1985 (Parents as Teachers National Center, 2010). PAT is a volunteer program that is implemented in the state of Missouri by local school districts (DESE, 2010b). Parents with children age prenatal through school age are eligible to participate in the PAT Program. The PAT

Program includes home visits, group meetings, screening, and resource connections for parents (Parents as Teachers National Center, 2010).

**Home Visits in the PAT Model**

Home visits in the PAT Program are sessions with the parent educator, parent, and child that last 45 to 60 minutes and are held in the home or another agreed upon location (Parents as Teacher National Center, 2010). The home visits are conducted by a trained parent educator for the PAT program. These visits utilize the PAT curriculum for the child's age. The visits include a parent-child activity, developmental information on the child, and a literacy component (Parents as Teachers National Center, 2010).

**Developmental Indicators for the Assessment of Learning 3 (DIAL-3)**

The DIAL-3 is a preschool screening that assesses the areas of motor, concepts, language, self-help, and social development (Mardell-Czudnowski & Goldenburg, 1998). The assessment is one that teachers and other professionals can administer after receiving training. The DIAL-3 utilizes percentile rank to assess children age three years zero months to six years and eleven months (Mardell-Czudnowski & Goldenburg, 1998). Subscales from motor, concepts, and language are calculated to form the DIAL Composite Total (Mardell-Czudnowski & Goldenburg, 1998).

**Missouri Assessment Program (MAP) Test**

The MAP test is a standardized assessment created by the Missouri Department of Elementary and Secondary Education Department (DESE) and CTB McGraw-Hill (DESE, 2000). The assessments for Communication Arts for the MAP are administered yearly at third grade through eighth grade and at the eleventh grade in Missouri School Districts (Webb, 2006). The assessments include multiple choice, constructed responses,

and performance events. The multiple choice portions of the MAP are based on the nationally normed assessment, the *Terra Nova* (DESE, 2000).

### Parents as Teachers Participants

For this study, students who received five or more visits from a parent educator during their preschool years in the Parents as Teachers Program are identified to be in the PAT participant group. The rationale for choosing five visits to mark participation in the PAT participant group is that five visits are paid for yearly by the Missouri Department of Elementary and Secondary Education for each PAT family.

## Overview of the Methodology

In the state of Missouri, all families with preschoolers have the opportunity through the local school district to receive the early childhood intervention, the Parents as Teachers Program. For this causal-comparative study, current fifth- and sixth-graders at the Eagle School District were separated into two groups: students who experienced the Eagle's PAT Program and students who did not experience the Eagle's PAT Program. These two groups of fifth- and sixth-graders who participated in PAT and fifth- and sixth-graders who did not participate in PAT were the independent variables for the completed study. A composite score on the DIAL-3 and scores on the third and fourth grade MAP Communication Arts assessment were the dependent variables in the study. Analysis for the study was three *t* tests of independent means to calculate if there was a significant difference in the means on test scores between the PAT participants and those who did not participate in PAT (Zhang, 2009). Assumption testing was completed prior to *t* test analysis and SPSS was used for the analysis in the study.

## Summary

Due to the mandate that all children read on grade level by the end of third grade from NCLB, many school districts are reviewing intervention programs in preschool and elementary school that effect academic achievement. School districts must implement research-proven programs that positively affect literacy. The purpose of this causal-comparative study was to evaluate if children from Eagle's Public Schools who participate in the Parents as Teachers Program have higher scores on the DIAL-3 composite and MAP Communication Arts tests as compared to Eagle's Public School students who do not participate in the Eagle's Parents as Teachers Program. Eighty-nine pairs of current fifth- and sixth-graders from the Eagle School District were used as the participants in the study. The study controlled for extraneous influences on achievement by pairing students in a PAT group and a non-PAT group. Chapter two examines literature associated with the study, such as incorporating aspects of legislation of the Economic Opportunity Act and NCLB, two-generation programs, and types of curriculum. Research studies on the PAT Program are presented. In Chapter Three, the methodology used in this study is discussed. Chapters Four and Five include the findings of this study and the discussion of the findings.

## CHAPTER TWO: REVIEW OF THE LITERATURE

In 1985, when early childhood interventions were not a common practice with many in the United States, the state of Missouri began the Parents as Teachers Program (PATNC, 2010). With the mandate that every school district in the state of Missouri implement prenatal and early childhood education to all parents and children in the school district, a universal preschool intervention was initiated within the state. To review this preschool intervention, literature related to theoretical framework, federal and state preschool initiatives, early childhood two-generation programs in education and interventions, and the evolution and research completed on the PAT Program were examined to establish information and previous research presented on the impact of preschool interventions on later academic achievement.

### Theoretical Framework

Social learning is the basis for many early childhood interventions. In social learning, people learn from being around and engaging with other people. Piaget found in *The Moral Judgment of the Child* (1965) that the best way to educate children is "…the method of work by groups (which) consists in allowing the children to follow their pursuits in common, either in organized 'teams' or simply according to their spontaneous groupings" (p. 405). Children learn about social and academic norms from these peer interactions.

In *Mind in Society* (1978), Vygotsky contends that social learning begins at birth by stating, "Learning and development are interrelated from the child's very first day of life." (p.84). Vygotsky (1978) went on to further explain how children engage in learning in social situations. Children learn through their interactions with others how to

converse, how to inquire about the world for answers, and how to copy adult expertise in procedures so that they can replicate the actions themselves (Vygotsky, 1978).

The zone of proximal development (ZPD) by Vygotsky is critical to the social learning theory. The ZPD is, "…the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). Through participation in preschool intervention activities with more experienced people, children can perform skills at a higher form of competency than if they did the same skills in an individual setting.

Vygotsky (1994) also contends that interactions in learning with young children should be at the child's developmental level. The child can learn with assistance to complete an activity today, so in the future the child will be able to accomplish the task independently. By engaging the child in activities, each child learns how to imitate and then expand the imitation into imaginary play. Though play, children create an activity they want to accomplish with rules attached to the play. It is by way of play that children regulate their own self-control and develop specific capabilities in learning (Vygotsky, 1994).

Using play to develop social language is a vital component to preschool interventions, according to research conducted by Coolahan, Fantuzzo, Mendez, and McDermott (2000). Research on brain development has shown that the growth of language occurs by children using auditory means to processing language, verbally expressing language, and listening to adults speak naturally around the child (Jensen, 2005). Months 19-31 mark the largest expansion in vocabulary for a child, so parents

and teachers must maximize language opportunities for the child.

In the first three years of life, children hear 30 million words in the professional families, 20 million words in the working class families, and 10 million words in the welfare families (Hart & Risley, 1995; Hart & Risley, 2003, p. 198). In one year, the children from professional families also received 166,000 encouragements and 26,000 discouragements while preschoolers from welfare homes received 26,000 encouragements and 57,000 discouragements (Hart & Risley, 1995, p. 199).

Language and parenting practices should be supported in the home or the microsystem according to Bronfenbrenner (1979). In Bronfenbrenner's Theory, a child's development is shaped from direct interactions in the microsystem to interactions between two or more microsystems called the mesosystem. To effect the most change in a child's life, change must occur in the child's microsystem or home (Bronfenbrenner, 1979). A third party who enters the home can strengthen a parent's understanding of parenting skills and model positive expectations in interactions, so that parents feel assured of their abilities in the home. By using this type of social intervention, parents can also have rapport with an expert to empathize and converse about pressing issues or concerns (Bronfenbrenner, 1979). The use of advanced knowledge by trained early childhood educators on child development and parenting skills supports not only the parenting abilities of the parent but also the child's aptitude in development. Children benefit from the interaction, because the parent educator supports the child to perform tasks that they could not perform in an individual setting.

Interactions with caregivers and educators stimulate healthy emotional and social competence that is vital in the first 24 months of development (Siegel, 1999). In order

for children to make appropriate societal responses to people in our culture, caregivers must model positive exchanges with others (Jensen, 2005). When negative responses are represented to children, synaptic pruning may occur, limiting the child's future ability to regulate emotions (Perry, 1997). Research has been inconclusive in determining if emotions can be properly developed after two years of age (Gunnar, 2001).

Social and cognitive development are central in a child's development. Early childhood programs that maximize vital learning periods in a child's life can greatly impact the child and the parent. Thus the social interaction promoted for both parents and children in two-generation early childhood programs allows each party to receive benefits from participating in the program.

The review of the literature explains the types of early childhood interventions in the United States. First the development of federal programs and legislation in Missouri and the United States is discussed. Next longitudinal two-generation programs in the United States and the academic impact those programs had on the participants in the early childhood interventions are presented. Finally, a summary is presented on the Parents as Teachers Program's creation, implementation, research, and curriculum.

## Legislation Impacting Early Childhood Education

In education, the state and local government have jurisdiction over what is taught at the local school level. This power is granted by the United States Constitution. In the tenth amendment of the U.S. Constitution, all powers that are not expressly given to the United States government are given to the states to handle (United States Constitution, amend. X). Since education is not mentioned in the United States' Constitution, education is given to the state and local government to administer as the local

government sees fit.

**Economic Opportunity Act**

In the 1960s, the federal government made monumental changes in education with the Economic Opportunity Act of 1964 and the Elementary and Secondary Education Act of 1965. In these acts, the federal government tied programs in the fields of education and health to funding at the state and local levels. If schools and health-related services wanted to receive funds from the federal government, the local school districts had to follow the federal guidelines and implement the programs dictated by the federal government.

In the Economic Opportunity Act of 1965, the United States government legislated funds to implement the creation of universal preschools, called the Head Start Program, for children from low-socioeconomic backgrounds. With the creation of the Head Start program in this proposal, the federal government wanted to give preschoolers a school intervention with qualified teachers so that the low socioeconomic children would be more prepared for their educational experiences (United States of Representatives, 2003). When Head Start was founded in the United States, less than 28% of all preschool age children attended preschools (National Center for Educational Statistics (NCES), 2010).

**No Child Left Behind**

The legislation of the Elementary and Secondary Education Act of 1965 was far reaching in education because it was the same act that was revised to give education the current No Child Left Behind (2008) legislation. The No Child Left Behind Act of 2001 (NCLB, 2008) was an extensive law enforced by the federal and state governments.

There are four pillars in the NCLB legislation that affect all aspects of early childhood education. The four pillars are: (a) stronger accountability for test results from states and local school districts, (b) schools have adaptable funds that can be used in Title I programs at the school district's discretion, (c) curriculum implemented that has research proven academic success, and (d) more options for parents' placement of children when local schools are performing poorly (United States Department of Education, 2004). Due to the responsibility placed on school districts to be accountable for implementing research-proven programs to effect academic change and to measure these educational gains though state tests, the NCLB mandate has made the need for effective preschool education imperative due to the requirement of children performing on grade level by the end of third grade in literacy.

The first pillar of NCLB established standards that states must create and follow for each grade of instruction and assess those standards through a state-devised assessment (U.S. Department of Education, 2004). NCLB demands that each school district and each state provide an annual report to the federal government on the state assessment scores obtained by each entity. State assessment scores are utilized to create a report card on the Adequate Yearly Progress (AYP) of the state and the local school district. Promotion in fifth-, eighth-, and eleventh-grades are also tied to sufficient scores on the state standardized test (U.S. Department of Education, 2004).

The state assessments in NCLB were devised to quantify progress in a report card to inform citizens and parents about the progress of schools in the country, state, and local area (U.S. Department of Education, 2004). The reports include all children in the school population, including children from ethnic groups, children with various socio-

economic status, and children receiving special services. School districts must have 95% of each subgroup included in the state test reported on the annual report (U.S. Department of Education, 2004).

If AYP is not met by schools on the state's standardized test after eight to nine years of preschool and elementary academic interventions, sanctions are applied to the school. Following the second year that a school has not met AYP, the school is identified as a school that needs improvement, and the school must initiate a plan to enrich student performance at their school. Parents at this time are also given the option for their child to attend another school in the district that has met AYP. If the school does not meet AYP for a third and fourth year, plans for progress and additional supports in education must be made. After five years of not meeting AYP, corrective actions by the state requires one of the following: replace staff in delinquent subjects, provide new educational materials, reduce administration's authority over school, use outside experts to guide instruction, lengthen time students are in school, or reorganize the hierarchy in the school (U.S. Department of Education, 2004).

The second pillar of NCLB allows the states and local schools the ability to choose where federal money is allocated in the schools (U.S. Department of Education, 2004). Educators at the state and local level can decide the parameters for a full academic year, ethnic groups' definitions, what alternate assessments are given to children with special needs, and how the state reports accountability for NCLB. School officials also have flexibility to apportion up to 50% of the federal education funds to items in education that are researched (U.S. Department of Education, 2004). This provision to distribute discretionary funds permits the school district the to spend funds

on preschool and elementary interventions that will effect the most change in literacy education.

Educational programs that use scientifically researched techniques are supported in the third pillar of NCLB (U.S. Department of Education, 2004). If schools fail to meet AYP, the school is to provide interventions for the students to improve academic achievement with research-proven programs (U.S. Department of Education, 2004). The interventions executed in the school district can be for current elementary students and for preschool students in the district. When the school district employs early childhood interventions to promote meeting AYP in the future, the school validates that more contact time in the preschool years supports and facilitates literacy learning.

The last pillar of NCLB allows parents to have choices about their child's education (U.S. Department of Education, 2004). When schools fail to make AYP with changes in curriculum and use of research-proven programs, the school must transport the child to an adequately performing school in the district if the parents request the school change. The school district must pay for the transportation costs to the properly performing school (U.S. Department of Education, 2004). To save future funds in transporting students, schools need to maximize funds in the early years of the child's education so that more expensive education interventions and transportation costs are avoided in the future.

With the end of NCLB set for 2014, educators are looking to the Common Core Standards as the probable future in education. The Common Core Standards have been adopted by 45 states (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). Missouri, where the Parents as Teachers

Program was started and where the National Center for Parents as Teachers is located, adopted the Common Core Standards in 2010. These standards have been adopted by states because they (a) are aligned with college and work standards, (b) are supported in academic programs used in high performing foreign countries, and (c) have implemented research proven skills. The Common Core State Standards in language arts set high academic achievement goals in reading, writing, speaking and receptive skills, and use of technology (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). Due to the continued emphasis on proper literacy performance in elementary school, the need for effective academic preschool interventions will continue with the implementation of the Common Core State Standards.

With the push in education to have all children reading on grade level by third grade, preschool programs must be researched to determine the program's and the teacher's impact on academics to assist schools in the quest to fulfill the directives in The No Child Left Behind Law (Hyun, 2003; Onchwari & Keengwe, 2009). Studies have established that interventions do effect positive academic change in preschoolers when steps are taken to aid parents and teachers in their interactions with young children (Fulmer, 1997; Onchwari & Keengwe, 2009). Programs that involve both the parents and child in knowledge and practical growth have shown positive academic change for the child and an increase in parenting skills.

## Two-Generation Early Childhood Interventions

The two-generation early childhood intervention model evolved to meet the needs of not only the child, but also to meet the needs of the child's family (LaForett &

Mendez, 2010). When needs are met in the family by involving parents, child achievement is directly and indirectly affected from the intervention (St. Pierre & Layzer,1999). Two-generation programs are effective in positive academic change when families participate in the program (Fantuzzo, McWayne, Perry, & Childs, 2004a; Marcon, 1999).

**Family Intervention**

To be effective two-generation programs, the first change must be to impact the family. The Head Start model contains components of parental involvement, comprehensive developmental and health services, and preschool centered literacy (Schweinhart & Weinhart, 1983; Schweinhart & Weinkart, 1997; Zigler & Valentine, 1979). The goal of Head Start was to involve parents in the preschoolers' learning, because children achieve more in schools when their parents are involved in their children's learning at both school and at home (Schweinhart & Weikart, 1997 ; Zigler & Valentine, 1979). This program was targeted to educate the entire child, so that the child was ready academically and socially for kindergarten entry (Bronfenbrenner, 1979; Zigler & Valentine, 1979).

One study that longitudinally tracked the effects of the Head Start Program was the Chicago Child-Parent Center Preschool Project (CPC). In 20 Chicago sites, researchers followed the progress of children who had participated in the Head Start Program [Chicago Longitudinal Study (CLS), 1999; Ou & Reynolds, 2006]. The original sample included 989 children in the CPC program and 550 children who had the opportunity to be in the Head Start CPC program but did not attend (Reynolds et al., 2007). The CPC Program included services for families that included nutritional and

health services, home visits with the family, parental involvement at school and home, and an emphasis on language arts skills in the program (Ou & Reynolds, 2006; Reynolds et al., 2007). This intervention indicated positive results for the families who participated in Head Start (Niles, Reynolds, & Roe-Sepowitz, 2008). CPC Program children had significantly higher high school graduation rates and slightly higher college attendance rates than their non-CPC participating peers. Participation in the program compelled more parental involvement in the two-generation program in every component of the preschool intervention (Niles et al., 2008; Schorr & Schoor, 1988). Parents who invested more time in the program were more likely to volunteer time in the early childhood intervention setting and were more receptive to home visits by the CPC teachers (Niles et al., 2008). By targeting both parents and children in the two-generation Head Start Program, every participant demonstrated significantly positive changes in academics, social interactions, and a higher probability for increased family income for the child and the parents.

The rationale behind the North Carolina Abecedarian Preschool Project, a two-generation early childhood program, was that interventions should be introduced earlier in the life of the child and family, so that the outcomes of the program would be longer lasting for participants (Ramey & Ramey, 1998). This intervention targeted low-income families with children age birth to five years. The program had 112 participants randomly assigned to the Abecedarian intervention or the control group (Campbell, Helms, Sparling, & Ramey, 1998; Ramey & Ramey, 1998). Families gained from the Abecedarian Preschool Project through on-site, all-day, extended child care interventions at no cost for the participating preschool students (Barnett & Masse, 2007). Parents also

received support for the preschool intervention through (a) optional participation on the center's advisory board, (b) voluntary parenting workshops, (c) connections to social services, and (d) group activities at the center (Campbell & Ramey, 1994). By providing extra hours for child care, parents made significant financial gains while enrolled in the program, and parents were able to work more hours and save income on child care (Barnett & Masse, 2007). Children from three to thirty-six months also benefitted from the program with higher scores in intelligence quotients (IQ) than non-participating peers (Ramey & Ramey, 1998).

A third two-generation program, the Comprehensive Child Development Program (CCDP), began with grants for 24 sites by the United States Department of Health and Human Services (St. Pierre & Layzer, 1999). This program provided support for low-income families in education, health, and social services for families with children age birth to school entry. After five years of implementation, the participants showed no significant difference in economic independence or parenting proficiency. Children in the program did show higher scores in cognitive development, achievement test scores, and mental processing tests, but the scores were not significantly different from non-participants. One site in the study did show statistically significant scores in participants' cognitive development and also in the parents' income, and use of federal programs and a positive increase in parents' feelings about education (St. Pierre & Layzer, 1999). Overall, the two-generation preschool interventions have shown a positive impact on participants' lives through early interactions and support to enhance both the parents' and children's development.

### Academic Success

Studies on Head Start and the Abecedarian Programs evaluated the programs' impact on the children's academic achievement in later grades. A consistent finding among the studies was that participation in the early childhood intervention programs positively affects academic levels in elementary grades and beyond (Currie & Thomas, 1999; McWayne, Green, Fantuzzo, 2009; Reynolds, 2000; Reynolds, Ou, & Topitzes, 2004). The children who participated in CPC showed higher high school graduation rates and higher college attendance rates than the control group in the study (Ou & Reynolds, 2006). The impact of Head Start also affects the academic gap between siblings who participate in Head Start compared with those who do not participate in Head Start (Currie & Thomas, 1999). The Abecedarian program indicated higher IQs, math scores, and reading scores when compared with non-participating Abecedarian peers (Campbell and Ramey, 1994; Ramey & Ramey, 1998). As the Abecedarian children entered college age, they were more likely to attend a four-year college than the control group in the study. Further cost analysis on the program also showed that participants in the Abecedarian Project were more likely to make more money in their lifetime, have children who made more money, and were less likely to smoke than their non-participating counterparts in the program (Barnett & Masse, 2007). The two-generation preschool intervention programs, Head Start, the Abecedarian Program, and the CPC Preschool School Program, have consistently shown to significantly increase academic success with participants in their programs.

## Pros and Cons for Early Childhood Interventions

When preschool interventions are implemented with children, the benefits and the

negatives from the interactions must be considered before an intervention is put into place. In the early childhood education profession, educators disagree if early childhood interventions should be used and when they should be used with preschool children.

Heckman (2010) cites four specific reasons to intervene in the early years of a child's life: (a) differences in cognitive and non-cognitive aptitude begin to differ in early childhood between different socio-economic levels, (b) key times exist in a child's development when interventions have a more dramatic result, (c) high fiscal profits have been shown with preschool interventions as opposed to interventions in the teen years, and (d) social emotional skills mastery leads to higher reasoning skills (Cunha & Heckman, 2010). Due to the opportunities that early childhood provides to utilize effective interventions, preschool programs related to enhanced literacy skills are key to monetary and academic gains in education.

The process of learning literacy, "…implies a continuum between prereading and reading, in which reading-related activities taking place during the preschool period are essential aspects of the course of literacy development" (Storch & Whitehurst, 2002, p. 934). Researchers have found that children must acquire certain oral language proficiencies, print awareness, and principles of emergent writing before children can move to decoding print (Storch & Whitehurst, 2002). If children are not given opportunities with literacy in the early years of life, those skills must be learned before the child can move on the literacy continuum. Belsky et al. (2005) found that early comprehension skills in preschoolers were directly related to their performance in oral and reading language in elementary school. Early childhood interventions in literacy are focused at the preschool level, so children who participate in these programs will have

more experience and mastery of language before the child enters school, allowing the child to be more equipped to manage the demands for literacy in the elementary classroom.

Participation in early childhood programs improve the child's cognitive skills in the long term and affect school achievement throughout a child's school education (Brooks-Gunn, 2003; Loeb, Bridges, Bassok, Fuller, & Rumberger, 2007; Magnuson, Ruhm, Waldfogel, 2007). Other researchers contend that the academic boost offered through participating in preschool interventions dissipate over the first few years of elementary education (Barnett, 1995; Gilliam & Zigler, 2001). More longitudinal studies need to be completed in order to ascertain the true long term effect on students' achievement through school and life after attending preschool interventions.

Children who do participate in early childhood interventions are more prepared for kindergarten (Andrews & Slate, 2002; Morrison & Bryant, 1998; Taylor, Gibbs, & Slate, 2000; Gullo & Burton, 1992). When children have more opportunity to engage with academic content over a period of time in preschool interventions, the children advance their literacy skills on the literacy continuum. Children who participated in preschool interventions scored higher on state standardized tests than their counterparts who did not participate in the preschool intervention (Gullo & Burton, 1992; Morrison & Bryant, 1998; Reynolds & Temple, 2008). By supporting children with a preschool literacy program, families are provided a partnership in the education of their children.

Supporting parents with home visits and educational information may also lead to a decrease in abuse to children. "Infants and young children are more likely than older children to experience maltreatment" (Child Trends, 2011, p. 2). Due to the demands in

care for small children, parents are more likely to be frustrated about the constant needs that must be met in parenting a preschool child. Parents who are shown and given educational methods that simplify and enhance the parenting experience may be less likely to abuse their children. Reynolds, Mathieson, and Topitzes (2009) found that preschool interventions using home visits reduce the rate of child abuse by 31%, but warn that more research should be conducted on the interventions to assure that there is a correlation between lower abuse rates and the preschool interventions.

In preschool interventions, educators use assessments for many different applications. Strand, Cerna, and Skucy (2007) contend that a test should only be used with preschool children when it is clearly focused in a specific area, and it can be clearly tied to an appropriate intervention. Strand et al. (2007) found that interventions in early childhood are ineffective at times because educators must perform many assessments and collect a plethora of data, but the educators do not have time to utilize a connection between the assessments and curriculum implementation (Strand et al., 2007). In many preschool programs, educators are performing assessments due to academic requirements on the program, but teachers are not evaluating each child's progress on the assessments. By failing to adjust curriculum to teach concepts that are absent or have not been met by the students, teachers are only assessing students to accommodate government and school regulations on preschool programs.

Some experts in early childhood education believe that it is not assessment that is important, but the focus of preschool interventions should be targeting services to specific populations as opposed to universally providing the program to all in the community (Reynolds, Temple, Robertson, & Mann, 2002; Reynolds, Temple, White,

Ou, & Robertson, 2011). In some studies, preschools have shown the most effectiveness with targeted children in low socio-economic backgrounds (Reynolds, Temple, Robertson, & Mann, 2002; Reynolds, Temple, White, Ou, & Robertson, 2011). Estimates in economic gain for the taxpayer have been approximated between $5.23 to $10.15 for every dollar spent in the targeted preschool program (Temple & Reynolds, 2007). To be cost effective in education, some experts contend that targeting preschool services and allocating funds to a high-risk population provides families in low socioeconomic circumstances support with academics.

An educational gap exists between children from low and high socio-economic backgrounds, so some early childhood experts believe it is a better use of resources to pursue only the children from low socio-economic backgrounds (Bridges, Fuller, Rumberger, & Tran, 2004; Reardon, 2003). People from higher social classes are more likely to register their children for private preschool services, and their children have higher attendance rates in preschool interventions (O'Brien-Strain, Moye, & Sonenstein, 2003). Some educators contend that preschool resources are wasted on children from middle to high socio-economic backgrounds, since their parents will purchase education and personally transport their children to an early childhood education site. Parents from middle to high socio-economic families have the means to provide their preschool children with many educational opportunities. So many educators argue that early childhood resources should only be universally delegated to supplement educational programs already utilized by parents in the middle to high socio-economic bracket (Rolnick & Grunewald, 2010).

Other educators believe that universal preschools are the best and most cost

effective way to intervene with all children. Loeb, Bridges, Bassok, Fuller, and Rumberger (2007) found that exposure to preschool interventions does benefit children from all socio-economic backgrounds in a positive way. In Georgia and Oklahoma, universal preschool interventions have been in place for several years (Gormley, Gayer, Phillips, & Dawson, 2005). Both of these state programs are universal in nature because they do not target one population or minority group. In Georgia, students in the program scored higher on the state assessment than the national norm for school readiness (Henry, Gordon, Mashburn, & Ponder, 2001). Participants in Oklahoma's program showed higher test scores for children from low, middle, and high socio-economic backgrounds (Gormley et al., 2005). By universally targeting all children in these state programs, children from all socio-economic backgrounds attained positive growth in academic achievement.

Even though numerous research studies support preschool interventions, some researchers oppose child care and early childhood interventions. Several studies have found that children who participate in early childhood programs are more aggressive than children who do not attend (Bracey, 2007; Lamb, 1996; Loeb, Bridges, Bassok, Fuller, & Rumberger, 2007). Other people are opposed to government run preschools. With 80% of the current population attending preschools, some people believe that government interventions in early childhood will limit choice in preschools and limit what preschools can teach (Burke, 2010). The United States government's law of *No Child Left Behind* also has some early childhood educators worried about the mandates in the law. Early childhood educators fear that the mandates in the laws will make preschools into direct instruction schools instead of play-based learning centers (Stipek, 2006). With any

intervention with young children, all advantages and disadvantages should be considered. Academic advantages may occur, but the disadvantages to the learning environment and social adjustment of the child may be too great of a risk to take with the preschool child.

## Three Approaches to Learning

Play-based learning in preschool interventions is supported by social theorists, such as Piaget (1932) and Vygotsky (1978). Both theorists contend that a child's best learning environment is with others so that learning can be supported and emulated by others in the environment. By interacting at all levels, the child learns cognitive skills, as well as social and emotional skills. Research conducted on play and its effects on learning in the preschool child shows that regulation of behavior and emotions have been found to predict a child's behavior during a playing task and the method that the child uses to learn (Howse, Calkins, Anastopolous, Keane, & Shelton, 2003; Fantuzzo, Perry, & McDermott, 2004b).

Play-based learning teaches children about mathematics and science ideas through interactions with items in the environment (Sarama & Clements, 2009; Tamis-Lemonda, Uzgiris, & Borenstein, 2002). Embedding certain mathematical concepts and literacy skills in a play-based preschool curriculum allows children the opportunity to have a more enriched experience by using these thoughts in their play (Arnold, Fisher, Doctoroff, & Dobbs, 2002; Singer, 2002; Whyte & Bull, 2008). The play-based learning model has been utilized in many preschool settings and continues to be employed in early childhood interventions rooted in social learning theory as proposed by Vygotsky (1994) and Brofennbrenner (1979).

The whole child approach has been embraced by educators since the 1960s, when

Head Start was introduced to the educational framework. Two of the founders of Head Start, Zigler and Valentine (1979), describe in their book the importance of educating the whole child. Children attending Head Start learn about cognitive items, but deficiencies in social and emotional development, nutrition, and parental involvement were also seen as areas that must be addressed to positively affect a child's development.

There are proponents who believe only cognitive or direct instruction should be utilized with preschool interventions. To use this intervention, teachers instruct the preschool child through traditional means. Children use worksheets and textbooks to indicate understanding of the material covered by an early childhood educator. Since the mandates of NCLB, Head Start, a whole-child program was targeted through assessment and teacher training to change its primary whole child focus to a cognitive preschool intervention (Bishop-Josef & Zigler, 2011). Duncan et al. (2007) found that contrary to other research, the social emotional competency of preschool children does not indicate future achievement in further grades, but early math and literacy skills are predictors of later academic achievement. Educators who support the direct instruction approach in preschool interventions believe that children should be taught content and skills that are needed and assessable in the classroom.

### Creation, Implementations, and Studies on the Parents as Teachers Program

In 1981, Missouri developed a program called the Parents as Teachers (PAT) because even with the Head Start Program to prepare children, Missouri educators were encountering many children coming to kindergarten at various levels of school readiness (Parents as Teachers National Center, 2010). Based on the research of White (1971, 1985, 1988) and his theories on child development and early parenting, three central

understandings were stated: (a) experiences in the first three years of life greatly determine development throughout one's life; (b) providing support for parents reduces stress, increases satisfaction, and increases opportunities for teaching children; and (c) useful research should be implemented so that parents and educators can use it even though further research still needed to be conducted. To accomplish the goals that White proposed, the PAT program was to include home visits that used the devised *Born to Learn Curriculum*, group meetings, periodic screenings, and resources for the parent. The program was devised as an all-inclusive program for every parent of a child age prenatal through school entry (Parents as Teachers National Center, 2010). In response to the success of the 1981 pilot program for PAT, the program was instituted in every school district in the state of Missouri as a mandatory offering under the Childhood Development Act of 1984 (Pfannenstiel, Lambson, & Yarnell, 1991).

Research on the PAT Program found that parents in the program enjoy the interactions and rapport-building communication that parent educators offer during the home visit (Woolfolk & Unger, 2009). Research also showed that the Missouri PAT program helps prepare children for elementary school. The first study that quantitatively tied PAT program participation to school readiness was by Pfannenstiel, Seitz, and Zigler (2003). The study was replicated in 2006-2007 and extended to include the Missouri state assessment. This study supported the PAT program as children in the Missouri PAT program were found to score higher on the Missouri Assessment Program (MAP) test than children who did not participate in the program. This research used a sample of 7,710 children across many different rural, suburban, and urban PAT programs who entered kindergarten from 1998-2000. Children were assessed for academic achievement

at school entry with the Entry School Profile assessment that was created by a panel of early childhood experts. The Entry School Profile has only been validated for reliability for state-wide use, and has not been evaluated for local use by school districts. Children were also assessed by the MAP test at the third-grade level.

Results from the Zigler, Pfannenstiel, and Seitz (2008) study indicated that children who entered kindergarten with high scores on the Entry Profile predicted high scores on the MAP in third grade. The research also showed that length of time in the program influenced high academic achievement. Children from low socioeconomic backgrounds who participated in the PAT program had almost equal scores to children from non-impoverished backgrounds with no PAT intervention.

A qualitative research study that may relate to this study is on the effectiveness of the PAT home visits. This study found that participants in the PAT Program did have consistent home visits implemented by parent educators, but the home visits did not address parenting behaviors (Hebbeler & Gerlach-Downie, 2002). In Hebbeler and Gerlach-Downie's research (2002), they found that home visits did little to change parents and their actions in parenting. Another finding in the study was that parent educators did not emphasize the interactions between parents and their children and this limited the educational impact of the program (Hebbler & Gerlach-Downie, 2002). The PAT curriculum does stress that parent educators be sensitive concerning culture and values with parents and their parenting skills. Parent educators are to focus on a family's strengths and not impose their values of parenting on the families they visit in the program (Albrecht, Haffner, & Kostelc, 2005).

A second qualitative study was conducted on the PAT Program and found that African American mothers benefitted from the program (Woolfolk & Unger, 2009). Mothers in the study were asked open-ended questions about their relationship with the parent educator and if their interaction during PAT visits met the needs of the family. The research also indicated that parent educators should be selected to fit the requirements of the families they serve (Woolfolk & Unger, 2009).

PAT research has also been conducted on other minority groups. Latinos and teen mothers were targeted in California's implementation of the Parents as Teachers Program (Wagner & Clayton, 1999). This research showed that participation in the Parents as Teachers Program allowed parents and children to benefit from the early childhood intervention. Children demonstrated more advanced development in social, emotional, and cognitive development than the control group in the study. When the PAT Program was also paired with other social services, significant growth in the child's cognitive ability was noted and the parents also showed a non-significant increase in a sense of confidence (Wagner & Clayton, 1999). The gains were small throughout the entire population in the program, but large increases were noted through implementing the PAT Program with non-English speaking Latino families.

**The PAT Curriculum Approach**

One of the top values in the Parents as Teachers Program is that, "Parents are their children's first and most influential teachers" (PATNC, 2010). A second foundation of the Missouri program is that all parents deserve the right to parental support if they choose to have the support. Each participant is viewed as a family that possesses strengths in parenting prior to PAT visits. Every home visit and group meeting in the

PAT Program is based on the *Born to Learn Curriculum* (Albrecht et al., 2005).

When the *Born to Learn Curriculum* was updated in 2005, the focus on the home visit was literacy, brain research, and social-emotional development (Albrecht et al., 2005). The changes in the curriculum were completed due to new research on how a child's brain develops in the first few years of life. Albrecht et al. (2005) collaborated with neuroscientists from Washington University School of Medicine in St. Louis. This partnership converted neuroscience results into concrete applications for parents and parent educators to use on the home visit.

Social-emotional interactions have always been a part of the PAT's *Born to Learn Curriculum* (2005). The PAT Program has held the understanding that building attachment is critical to the parent-child bond in the early years of life. In the 2005 revision of the *Born to Learn Curriculum*, more emphasis to social-emotional development through literature and parent-child activities was added to the curriculum. This change was due to research on social-emotional attachment and the effects on children (Albrecht et al., 2005).

Studies on the *Born to Learn Curriculum*, since the update in 2005, have shown that the curriculum does effect change in children (Drotar, Robinson, Jeavons, & Kirchner, 2008). According to Drotar et al. (2008), children who participated in the *Born to Learn Curriculum* showed higher abilities to problem solve than others not receiving the *Born to Learn Curriculum.* Problem solving in this study included children exhibiting determination, enjoyment, and proficiency in the task (Drotar et al., 2008).

To allow for connections in the early childhood brain, children must be given open-ended activities and questioning to allow the child to pursue their interests in

learning (Lonigan & Whitehurst, 1998). Also, when teaching a preschool child, it is important to teach the whole child and not just focus in on one area of development (Rushton et al., 2010). Many of the activities included in the PAT Program are open-ended to address the four areas of development, so that many different learning activities can take place in the home (Albrecht, Haffner, & Kostelc, 2005

**The Home Visit**

Home visits to the family begin after the family is enrolled in the PAT Program. The first and central part of the PAT Program is the individualized home visit implemented by the parent educator (Cohen, 1991). Winter (1985), one of the first program directors for the Parents as Teacher National Center, indicated that the home visit component was the foremost element to building relationships with parents. The basis of each individual home visit is centralized on the *Born to Learn Curriculum* (Nelson, 2000) and is adapted to meet the needs of the family and child. The curriculum is based on four areas of development to educate the whole child: (a) language, (b) cognitive, (c) social-emotional, and (d) motor development. Research on early childhood has shown that the first few years of life are very pivotal in a child's development, and children must be given many types of interactions to express emotions and connect with adults to facilitate their learning process (Jensen, 2005; Rushton, Eitelgeorge, & Zickafoose, 2003; Rushton, Juola-Rushton, & Larkin, 2010). Attachment to parents must take place during the early years of life (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1983; Hodges & Tizard, 1989) Even if parents are supportive in later childhood, the child will have difficulty making connections in their relationships if early attachment was lacking (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1983;

Hodges & Tizard, 1989).

The home environment is changed from the encounters with home visits. When parent educators engage parents in developmentally-appropriate practices and play for the child, parents are more likely to provide an educationally-stimulating home environment (Owen & Mulvihill, 1994). Prenatal through school age visits are available to parents in the state of Missouri with a child in those age requirements. Depending on the family need, the parent educator can visit the family weekly, bi-monthly, monthly, or every six to eight weeks. Each lesson plan in the curriculum includes: (a) developmental information for the child's age, (b) parent-child activity during the visit, (c) sharing books during the visit, and (d) open-ended questions to build knowledge and rapport with parents (Owen & Mulvihill, 1994; PATNC, 2005).

Sweet and Appelbaum's research (2004) showed that parents who receive home visits benefit by participating: (a) during time off of work, (b) to allow parents to learn parenting skills with a professional's support, and (c) receive financial incentives of not having to drive or pay for child care during the home visit. According to Korfmacher et al. (2008), the home visit should engage the parents, and when parents become more involved in the early childhood intervention, the results from the home visit are more effective for the parents. Follow-up studies have shown that home visits effect change in cognitive abilities after the intervention has ceased in the home (Hutcheson et al., 1997).

The use of home visits has also been shown to facilitate change in high-risk families. Marcenko, Spence, and Samost (1996) found that high risk mothers who received home visits for 16 months showed a greater access to agencies and services to aid the family than the control group that received no home visits. Mothers in this study

also showed a decrease in psychological distress in the experimental home visit group (Marcenko, Spence, & Samost, 1996).

The behavior of children and behavior modification are areas discussed with preschool parents during home visits. In the Houston Parent-Child Development Center study, low income Mexican Americans who had children in jeopardy of behavior problems were given home visits (Johnson & Breckenridge, 1982; Johnson & Walker, 1987). Initially the children showed lower levels of inappropriate behavior from parent and teacher evaluations (Johnson & Walker, 1987). Children who were in the pilot of this program did continue to show more appropriate behavior in further longitudinal assessments. Others who engaged in replicated studies in Birmingham and New Orleans did not show any significant difference in years after the intervention (Johnson, 2006). Findings on whether home visits do impact significant behavioural change are inconclusive with present research results.

**Group Meetings**

Group meetings are the second part of the PAT Program. Group meetings allow children and their parents a time to socially interact with other adults and children. Brown and Conroy (2002) found that preschoolers need social contact because it allows children to develop socially, cognitively, and physically. Verbal reception and print familiarity have been shown to increase when children interact with peers who possess more advanced skills (Henry & Rickman, 2007). Social skills allow children to understand social norms and cultivate peer approval (Hollingsworth, 2005; Vail & Elmore, 2011). In the group meeting setting, special needs children also benefit by witnessing and mimicking positive interactions they encounter with more socially-

advanced peers (Vail & Elmore, 2011).

The rationale for the group meetings is to allow parents to hear information from experts in the field of child development, to provide support for parenting issues, and to allow parents to form a network of support with other parents. Parents want to build connections with others who may assist their parenting skills through a mutually edifying relationship with other parents (Olson & Hyson, 2005). Some events can be lectures with question and answer sessions, while others can be informal gatherings that have a theme, like Big Truck Night, where parent educators share developmental information on the theme of the event for that particular age and development of each child.

**Developmental Screenings**

The third component of the PAT program is developmental screenings. The parent educator performs a developmental screening at least annually with each eligible child in the family. By performing regular developmental assessments, parents are alerted to how their child is developing and shown how to monitor development. Screenings began in early childhood education in 1966. In 1967, the Early and Periodic Screening, Diagnosis, and Treatment Program (EPSDT) was created by "...both Title XIX (Medicaid) and Titile V (Maternal and Child Health) portions of the Social Security Act (being) amended" (United States Department of Health and Human Services, 2011, p. 5). This program mandated that children be administered periodic screenings in health and development to detect possible developmental delays (Meisels, 1988). Later the Individuals with Disabilities Education Improvement Act of 2004 required all of the states to discover, place, and assess all children with special needs (Gartland & Strosnider, 2007).

Over the last 35 years, screenings have been developed and revised due to changes in education and research on screenings. From 2006-2008, research identified that one in six children have a developmental disability (Boyle et al., 2011). "Developmental screening has the great potential for improving the lives of young children" (Meisel, 1988, p. 527). Intervention in early childhood is regarded as the opportune time for intervention. Families and schools have pressure to intercede as soon as possible to effect the most academic change for the child (Baker & Feinfeld, 2003). Learning disabilities and autism are areas that have shown the greatest response from early childhood interventions (Green, Brennan, & Fein, 2002; Harris & Handleman, 2000).

If the screening indicates a problem area, further comprehensive tests should be used to ascertain if the child needs an intervention in the area of the delay (Gartland & Strosnider, 2007; Meisels, 1988). Barnes (1982) reported that screenings are accurate in their reporting 75% of the time. The Ages and Stages Questionnaire, the screening used by many early childhood programs, including the Parents as Teachers Program, reports that the general screening predicts the probability of a child needing special education intervention accurately 89% of the time (Kerstjens et al., 2009). Screenings are tools that are used in the PAT Program to define academic interactions and to indicate if interventions need to be sought for preschoolers.

**Resource Network**

The last component of the PAT program is the resource networking available to parents. In group meetings, parents are able to network and form relationships to aid in the task of parenting. Many PAT programs also allocate space in school buildings for

play groups, libraries, toy lending libraries, and other resources so parents can build a resource network for parenting their child (Albrecht, Haffner, & Kostelec, 2005).

Social toys that facilitate interaction between parents and children and between multiple children are toys that are usually available for parents to utilize from the PAT office. Researchers have found that certain toys like dress-up clotehs, riding toys, puppets, and building blocks assist children to be socially interactive (Ivory & McCollum, 1999; McCabe, Jenkins, Mills, Dale, & Cole, 1999). Using the resource network to check out toys allows parents to use toys for a brief amount of time. The freshness of toys will entice children to play with the new toys (McGee, Daly, Izeman, Mann, & Risley, 1991).

The resource network of the PAT Program allows parent educators to empower parents to obtain resources outside of PAT (Albrecht et al., 2005). Many times parents do not know where to obtain health care, housing, food, utility assistance, and other needs pertinent to everyday life. Parent educators are not supposed to obtain extra services for families, but they should tell parents about agencies and help parents get in contact with organizations to support that family.

## Summary

Several topics were examined in this chapter with the emphasis on social interaction and peer learning. Many preschool interventions are based in social learning. Social learning is centered on the understanding that children learn from mimicking their peers and adults. Children are supported in higher realizations when paired with a more educated person. The first person to guide children in higher learning is a parent. Parents can be supported during the preschool years by educators who teach the parent about

social and academic development in their child.

To support parents in educating preschool children, several legislative acts have been enacted to monetarily support preschool and later learning initiatives. The Economic Opportunity Act was the first act in the United States to federally fund a preschool intervention, Head Start, to support children from low socio-economic areas in the complete development of the child. Further legislation with No Child Left Behind and the current Common Core State Standards maintain the importance for preschool education due to the early required literacy competencies by the end of third grade.

Two-generation programs in early childhood education were devised to support legislation. These programs reinforce assistance to both parents and children. Parents in the program receive education and support from professionals in education, while children obtain academic and social skills from peers and teachers in the programs.

With the variety of preschool programs, many considerations should be evaluated to decide the effectiveness of the program. Universal admittance or targeted entry to programs can decide the cost of the program to society. Play-based interactions or a complete academic model in the preschool intervention should also be considered when designing the program.

Chapter Three discusses the study of the PAT Program in one school district in Missouri. In Chapter Four, the results from PAT and non-PAT pairs were analyzed, and Chapter Five contains a discussion of the findings from the study.

# CHAPTER THREE: METHODOLOGY

## Introduction

The Parents as Teachers (PAT) Program is a program that provides home visits, group meetings, screenings, and resources to parents of children age prenatal through school age in the state of Missouri (Parents as Teachers National Center, 2010). The PAT Program is administered by every local school district to the preschool parents on a voluntary basis and the program is free of charge to all who participate in the program (Department of Elementary and Secondary Education, 2010b). The program was started in the state of Missouri in 1985, and currently the program is in every state in the United States and in several foreign countries (Parents as Teachers National Center, 2010).

The purpose of this causal-comparative study was to expand previous research on the effectiveness of the PAT Program on academic achievement (Pfannenstiel et al., 2003; Zigler et al., 2008). The research questions for this study were:

1. Do currently enrolled fifth- and sixth-grade students who participated in the Eagle's Parents as Teachers Program show a significant difference on the school readiness screening, the DIAL-3 composite score when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program?
2. Do currently enrolled fifth- and sixth-grade students who participated in the Eagle's Parents as Teachers Program show a significant difference on the third grade MAP Communication Arts test when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program?

3. Do currently enrolled fifth- and sixth-grade students who participated in the Eagle's Parents as Teachers Program show a significant difference on the fourth grade MAP Communication Arts test when compared to fifth- and sixth-grade students who did not participate in the Eagle's Parents as Teachers Program?

In chapter three, an explanation of the participants for the study and the setting are discussed for this study. After these explanations, instruments used in the study are described, including reliability and validity information on each instrument. Procedures used in the collection of the archival data are discussed next in the chapter. The end of the chapter consists of the research design and the statistical analysis for the study.

## Participants

The participants in this study were current fifth- and sixth-grade students who did or did not participate in the Eagle's Parents as Teachers Program from 1999-2006. All of the students in this sample were either identified as a PAT participant or a non-PAT participant. To be identified as a PAT participant, the student must have received at least five home visits from a parent educator with the Eagle School District. In the Missouri Department of Elementary and Secondary Education budget, each child in the PAT program is guaranteed five visits yearly from a trained parent educator (OA, 2009). PAT participants from other school districts were not considered for the research due to lack of information included in permanent files on students when transferring to the Eagle School District.

The average size for each grade level in Eagle Public Schools is 275 students (DESE, 2010a). This study used a convenience sample that was recorded from archival

data from the Eagle School District. The study included 89 pairs of students from the Eagle School District. After a list of PAT participants from both the current fifth- and sixth-grade classes were compiled, a list of non-participants in each grade was created for the study. Each PAT participant was matched with the first corresponding match in the non-PAT group until one list of participants was exhausted. The matched pairs were equated according to socioeconomic status, gender, and ethnicity. If PAT participants were unable to be paired because of a non-match with a non-PAT participant or the file contained incomplete data, the student was excluded from the study.

The first paring indicator was gender. Students were matched according to their gender indicated to the Eagle Public School District. To match participants on the socioeconomic factor, participants were coupled according to participation or non-participation in the Federal Free and Reduced Meals Program. To compare ethnicity, students were matched in four categories: Caucasian, African-American, Hispanic, and Other Ethnicity. The last pairing indicator was participation or non-participation in Eagle's pre-kindergarten program. In the original proposed study, students were also to be matched on participation in the Eagle Pre-K program. Due to differences in program implementation during the 2005-2006 school year, all children who attended the Eagle Pre-K Program that school year also attended the Eagle PAT Program. Due to not having a group of current sixth-graders who did not attend the Eagle Pre-K Program and were PAT participants, the matching characteristic was dropped from the study. By matching participants in the study, it was endeavored to keep extraneous variables from affecting the validity of the study.

## Setting

The population for this study comes from the Missouri community of Eagle, Missouri, located in Northeast Missouri on the Mississippi River. The population for the county according to the United States Census (2010) was 28,781 in 2010. The child population in Marion County, where Eagle mostly resides, is 6,941 (The Annie E. Casey Foundation, 2010). The total enrollment for the Eagle Public Schools in 2010 was 3,484 students (DESE, 2010a). There are several local private schools that children attend in the Eagle Public School attendance area in this small suburban town. Forty-seven percent of the students in the Eagle School District receive free and reduced meals (The Annie E. Casey Foundation, 2010; DESE, 2010a).

## PAT Program

The Parents as Teachers' (PAT) *Born to Learn Program* was used in this study. In the state of Missouri, each family with a child prenatal through school age has the right through the local school district to receive PAT services (DESE, 2010b). To sign up for the program, parents filled out a paper or online registration form. Once parents agreed to join the program, a parent educator was assigned to the family to implement the family's home visits.

The home visits were implemented for volunteer families in the Eagle School District by parent educators who were trained in the PAT *Born to Learn Curriculum*. The services were provided to the participants in the study in their preschool years, from 1999-2006. Each family had the capability to receive five or more visits each year during their participation in the PAT Program. Home visits were commonly completed in the participant's home, but some visits occurred in other locations.

## Instrumentation

Instruments were chosen to measure school readiness at kindergarten entry and academic achievement in communication arts at the end of third and fourth grades of the student's school career through use of the DIAL-3 and the MAP Communication Arts tests. The DIAL-3 was chosen as a school readiness assessment because it has been shown to be valid and reliable as a school readiness indicator (Mardell-Czudnowski & Goldenburg, 1998). The Communication Arts MAP tests, valid and reliable state assessments given to all qualified children in the state, were selected to measure sustained academic achievement in literacy from participation in the Parents as Teachers Program (Department of Elementary and Secondary Education, 2000; Webb, 2006).

The DIAL-3 screening assesses the physical, cognitive, communication, social and emotional, and adaptive areas mandated by the Elementary and Secondary Education Act (ESEA) of 1965 to be included in preschool assessments (Mardell-Czudnowski & Goldenburg, 1998). Five subtests incorporated in the DIAL-3 are (a) motor, (b) concepts, (c) language, (d) self-help development, and (e) social development (Mardell-Czudnowski & Goldenburg, 1998). Each item in the DIAL-3 assesses a distinctive behavior and was scored with a raw score that was calculated by hand or computer. The raw score was on a five-point scale with zero indicating the lowest score and four indicating the highest score. The raw score for each subsection was then converted to a scaled score on a functional five-point scale with zero being the lowest score and four being the highest score (Mardell-Czudnowski & Goldenburg, 1998). The composite score on the DIAL-3 was calculated from scaled scores in the motor, concepts, and language sections (Mardell-Czudnowski & Goldenburg, 1998). For the purposes of this

study, the composite score, the DIAL-3 Total, was used to document academic proficiency for both the PAT participants and the non-PAT participants.

The DIAL-3 has an internal consistency reliability of .87, showing that the items used in the DIAL-3 correlate with other measures of school readiness (Mardell-Czudnowski & Goldenburg, 1998). The DIAL-3 has a test-retest reliability of .88 for children age three years and zero months to four years and five months, and a test-retest reliability of .84 for children age four years and six months to five years and ten months (Mardell-Czudnowski & Goldenburg, 1998). Validity for the DIAL-3 has been measured for content and concurrent validity, but the test has not reported any data on predictive validity (Mardell-Czudnowski & Goldenburg, 1998).

The third and fourth grade Missouri Assessment Program (MAP) Communication Arts tests were the second and third assessments used to measure the effect of the PAT program. The Department of Elementary and Secondary Education state the rationale for the creation of the MAP assessment in the following statement:

> The Missouri Assessment Program (MAP) is one of several educational reforms mandated by the Outstanding Schools Act of 1993. As a result of this legislation, the State Board of Education directed the Missouri Department of Elementary and Secondary Education (DESE) to identify the knowledge, skills, and competencies that Missouri students should acquire by the time they complete high school and to assess student progress toward these academic standards. DESE staff worked with educators, parents, and business professionals from throughout the state to develop the Show Me Standards and to create the MAP as a tool for evaluating the proficiencies represented by the Standards. (DESE, 2000, p. 2)

The MAP test was contracted and created by the CTB McGraw-Hill Company (DESE, 2000). The multiple choice portion of the MAP assessment is the survey portion of the *Terra Nova* test, a standardized test from CTB McGraw-Hill (DESE, 2000). Technical information on MAP scoring states that MAP scores in the same content area can be compared in adjacent grades because the scores are in the same range from third grade to eighth grade (DESE, 2011c).

Scores for the MAP test are derived scores from raw scores that are calculated to the MAP scale score (CTB McGraw Hill, 2010). The scale score is on a continuous scale that is a derived score. Continuous scores are used on the MAP test because students can earn any score on the MAP score continuum from zero to over 820 (CTB McGraw Hill, 2010; Gall, Gall & Borg, 2007). A derived score aids in understanding a student's performance in comparison with others who took the MAP assessment (Gall, Gall, & Borg, 2007). Each scale score for the MAP assessment is reported on the Student Score Label that is placed into each student's permanent file (CTB McGraw Hill, 2010).

Scores from the MAP third grade Communication Arts assessment are as follows: (a) Below Basic – 455-591, (b) Basic – 592-647, (c) Proficient – 648-672, and (d) Advanced – 673-790. The fourth grade Communication Arts MAP scores are as follows: (a) Below Basic – 470-611, (b) Basic – 612-661, (c) Proficient – 662-690, and (d) Advanced – 691-820.

Criterion validity on the MAP test has been evaluated on the Show-Me Standards, the state standards that Missouri students must attain for subjects and grade levels (Department of Elementary and Secondary Education, 2000). Validity was also assessed by Missouri educators who reviewed the assessment, and each of the items within the test

was assessed for its correlation between the entire assessment score and item scores (Department of Elementary and Secondary Education, 2000). Consequential validity on the MAP test has also changed instruction in Missouri, so teachers are currently teaching the concepts and skills similar to those on the MAP assessment (Department of Elementary and Secondary Education, 2000).

Reliability on the MAP assessment has been assessed in scorer agreement (Department of Elementary and Secondary Education, 2000). Trained scorers assess the constructed response and performance events. The scorer agreement between the MAP assessments given in 1999-2000 on open-ended items was between 75%-96% agreement (Department of Elementary and Secondary Education, 2000). The MAP test is also reliable in the levels of proficiency used on the assessment because these levels were set by panelists who through several rounds of evaluations came to a consensus on the levels of proficiencies (Department of Elementary and Secondary Education, 2000). The MAP has a high inter-rater agreement of 84.12% (Department of Elementary and Secondary Education, 2000). The intraclass correlation between third and eighth grade is greater than 80% (Webb, 2006). The MAP test has been tested for reliability against the *Stanford Achievement Test 9$^{th}$ Edition* and has shown reliability for assessing the same concepts 80%-90% of the time (Department of Elementary and Secondary Education, 2000). The MAP Communication Arts test has a reliability of 91.3% according to the Department of Elementary and Secondary Education in Missouri (Department of Elementary and Secondary Education, 2000).

## Procedures

To obtain records on a school's Parents as Teachers Program, the school's administration was notified to ascertain who the administrator of the Parents as Teachers Program is for the district. The Eagle's Parents as Teachers Program is housed in the school district's Special Services Building. The administrator of the program oversees (a) the Parents as Teachers Program, (b) the Eagle's Title-I pre-Kindergarten program, (c) the Missouri Preschool Project, and (d) the Early Childhood Special Education Program. The Special Services Building is where all of the documentation on Parents as Teachers is housed for the Eagle School District.

Permission through a written application presented to the Eagle School District's Central Office was granted by the district to conduct research and use permanent files, PAT participation lists, and matching list information. After obtaining the district's permission, authorization to complete research was obtained through Liberty University's Institutional Review Board (IRB) to conduct research that involves human subjects. Following IRB permission, the researcher went to each of the five elementary schools by alphabetical order of the school's name. At each elementary school when completing data collection, each participant in the study was assigned a number on flash drive A to protect anonymity in the study. On flash drive B, students' numbers with the SPSS grid information was stored. Use of names was needed to match all data collected from permanent files, Free and Reduced Lunch lists, and Parents as Teachers rosters of family participation.

Fifth-grade files were searched in the permanent file room to record DIAL-3 composite and third and fourth grade MAP Communication Arts scores and data was

entered in that location. The demographic information that was listed on the MAP composite score sheet was coded into the SPSS data grid for gender and ethnicity. The SPSS data grid was located on the researcher's personal computer that went in and out of each elementary school with the researcher.

The sixth-grade DIAL-3 scores were listed on a spreadsheet documenting the composite scores for students in that grade. This list was obtained through the Eagle School District's special services office. The third and fourth-grade MAP scores for the current sixth-graders were obtained from the Administration Office on spreadsheets provided from DESE. Demographic information, gender and ethnicity, was also received on a spreadsheet from the Administration Office. The SPSS data grid was located on the researcher's personal computer that went in and out the middle school office and the Administration Office with the researcher. All MAP scores, demographic information, gender and ethnicity information was entered into the SPSS grid while in a private room at the Administration Offices.

The MAP scores on the Communication Arts third and fourth-grade assessments were entered into the appropriate column for each participant in the SPSS grid. Ethnicity was categorized as (a) white non-Hispanic, and (b) African American, (c) Hispanic (d) other ethnicity. Students were also coded as either attending or not attending the Eagle's pre-kindergarten program. All males were coded the number one and all females were coded the number two in this study.

Parent participation in PAT from 1999-2006 was obtained from permanent files for current fifth-graders and from the PAT office in the Eagle School District for current sixth-graders. Families who received five or more PAT visits were coded as one and

families that did not receive five PAT visits were coded as zero. All PAT visit information was entered on the SPSS data grid. This data was entered at the Eagle School District's Special Services building where the PAT offices are housed for the district.

Socioeconomic status was obtained on one sheet for fifth- and sixth-grade students from the Central Administration Office. Low socioeconomic status was coded as zero for families who qualified for free and reduced lunch and one for families who did not qualify for the program.

After the information was recorded for all three matching characteristics, PAT students were paired with non-PAT students. Fifth- and sixth-grade students in the district were paired with matching students on all three factors — gender, ethnicity, and socioeconomic status. The first PAT student on the fifth-grade list was matched with the first complete match in the non-PAT fifth-grade group. The matching ended when either all participants in the PAT list or the non-PAT list were exhausted.

## Research Design

A causal-comparative design was chosen to compare one school district's PAT Program participants' academic achievement with non-PAT program participants on the DIAL-3 Composite and the third and fourth grade MAP Communication Arts tests with current fifth- and sixth-grade classes in the Eagle School District. This design allows the researcher to examine if a causal relationship exists between an independent and dependent variables when the independent variable occurs prior to the research and is not assigned by the researcher (Campbell & Stanley, 1963). To control for inherent threats to

validity in the casual-comparative design, participants were matched by designated characteristics to provide equality in the matched pairs.

A true experimental design would be unethical to utilize in this research. The Parents as Teachers Program is a free program offered to all Missouri families with prenatal to school age children, so to limit who could participate in the program would be academically unethical to the participants and the children who could not participate in the PAT Program. In a 25-year-old established program with limited research to support academic achievement from participants, it is important to conduct causal-comparative research with archival data to understand if there is a possible relationship between PAT participation and higher academic achievement.

## Data Analysis

Prior to research, assumptions were made about the samples in the study. It was assumed that all scores in the study were made without influencing other scores. This was based on the standard delivery scripted for both the DIAL-3 and all MAP Communication Arts tests (DESE, 2011a; DESE, 2011b, Mardell-Czudnowski & Goldenberg, 1998). A second assumption was that reporting agencies state that the DIAL-3 and the MAP scores are normally distributed and interval scores (DESE, 2008; Mardell-Czudnowski & Goldenberg, 1998). A Levene's test was conducted to test for the homogeneity of variances with SPSS for the third assumption for the study. Levene's tests are a method to understand the significance level's equal statistical variances and power with normality violations (Conover, Johnson, & Johnson, 1981). A histogram was graphed by SPSS to show if scores were scattered or linear. With the alpha set at a level of .05, a univariate analyses to determine whether the null hypotheses should be rejected.

The last assumption test was the Kolmogorov-Smirnov goodness of fit test. According to Olea and Pawlosky (2009), "The Kolmogorov-Smirnov test is a convenient method for investigating whether two underlying univariate probability distributions can be regarded as undistinguishable from each other or whether an underlying probability distribution differs from hypothetical distributions" (p.749).

Once the data was collected, the means and the standard deviations from both the PAT participants and the non-PAT participants were calculated for the DIAL-3 Composite scores, the third grade MAP Communication Arts scores, and the fourth grade MAP Communication Arts scores. The *t* test for independent means was employed since, "In most causal-comparative studies, researchers compare the mean scores of two samples to determine whether they are significantly different from each other" (Gall, Gall & Borg, 2007, p. 317). Three two-tailed *t* tests for independent means were conducted to determine if a difference existed between the PAT group and the non-PAT group scores on the DIAL-3 Composite scores, the third grade MAP Communication Arts scores, and the fourth grade MAP Communication Arts scores. From this analysis, a Cohen's *d* was calculated to determine the confidence interval for the study. By statistically computing the confidence interval for the study, practical meaning was assigned to the findings of the research (Cumming & Finch, 2005).

A large sample was used to prevent against Type II error (Gall, Gall, & Borg, 2007). A priori power analysis was conducted to determine that with use of a two-tailed *t* test the sample required 128 participants and a total of 178 participants were used in the study. Each grade in the Eagle's Public School has approximately 275, children and this study used two district wide grade levels. (DESE, 2010a).

## Summary

This chapter addressed the participants and the procedures used to collect data in this research. Chapter Four explores the results from the study that was conducted on the Parents as Teachers Program. In Chapter Five, the results and implications from the research are discussed.

# CHAPTER FOUR: FINDINGS

The purpose of this causal-comparative study was to investigate the differences between current fifth- and sixth-grade children who participated in the Eagle Parents as Teachers Program from 1999 to 2006 with children who did not participate in the program. The two groups were compared on three standardized assessments: the DIAL-3, the Communication Arts third grade MAP test, and the Communication Arts fourth grade MAP test. This chapter discusses the results of the three research hypotheses. The second part of this chapter offers a summary of the results.

The participants for this study were 178 current fifth- and sixth-grade students in the Eagle School District in Missouri. Students who participated in the Eagle PAT Program were paired with a non-PAT peer on gender, ethnicity, and socioeconomic status. Every student in the study had scores on the DIAL-3, the MAP Communication Arts third grade assessment, and the MAP Communication Arts fourth grade assessment in order to be considered as a participant.

## Assumption Testing

### Normality Testing

To test for normality, a Kolmogorov Smirnov goodness of fit was conducted. The Kolmogorov Smirnov test with the Lilliefor's Significance Correction is used to detect nonlinearity in a normal distribution of scores (Steinskog, Tjostein, & Kvamsto, 2007). . On the DIAL-3 assessment, the results indicated that the distribution was significantly different from a normal distribution ($p < .05$) in Figure 4.1. The Kolmogorov-Smirnov test indicated that the DIAL-3 composite scores were not normally distributed for PAT

participants ($p$ = .03) and non-PAT participants ($p$ = .00). Both MAP Communication Arts tests indicated that the scores were linear in each normal distribution.

Table 4.1

*Kolmogorov-Smirnov Test of Normality*

| Test | | Statistic | Df | *P* |
|---|---|---|---|---|
| DIAL-3 Score | NO PAT Participation | .10 | 89 | .03 |
| | PAT Participation | .14 | 89 | .00 |
| MAP CA 3rd Grade | NO PAT Participation | .09 | 89 | .09 |
| | PAT Participation | .08 | 89 | .20 |
| MAP CA 4th Grade | NO PAT Participation | .08 | 89 | .19 |
| | PAT Participation | .08 | 89 | .20 |

**Levene's Test**

The second assumption test was the Levene's test for equality of variances. The Levene's test for the DIAL-3 composite scores shows that $F$ = .04 and the significance level was .85. Since .85 is greater than .05, there is no significant difference in variance between the two groups. The significance for a two-tailed test is .09, so there is no significant difference between the means of the two groups.

When the MAP communication arts test scores for third graders was assessed with the Levene's test for equality of variances shows that $F$ = 1.45 and the significance level was .23. Since .23 is greater than .05, there is no significant difference in variance

between the two groups. The significance of the two-tailed test is $p$ =.13 which is more than $p \leq .05$.

For the MAP communication arts test for fourth graders, the Levene's test for the equality of variances indicates that $F$ = .18 and the significance level is .68 which is higher than the .05 set significance level. There is no significant difference in the variance of the PAT and the non-PAT group. The significance of the two-tailed test is $p$ =.46 which is more than $p \leq .05$.

**Results**

Prior to conducting the *t* tests, assumption testing was conducted. Even with the normality violations, a *t* test was chosen to compare the mean scores on the DIAL-3 assessment for PAT and non-PAT participants, because the grounds to use a nonparametric test is the continuous character of the data (Gravetter & Wallnau, 1985). To use a parametric test, the distribution of scores does not need to be a rigid normal distribution. Educational data can very often be skewed and not follow the normal distribution of scores (Micceri, 1989). Delaney and Vargha (2000) also found that distributions that are skewed in the same direction are less likely to have violations that are acceptable to research.

Levene's test for the equality of variances indicated that F = .04, and the significance level was .85 which is higher than the .05 set significance level. The PAT scores do appear to be slightly more positively skewed than the non-PAT scores on the DIAL-3 as found in Figure 1. Due to the non-normality for the distributions in scores box plots were used to understand if extreme outliers were affecting results for the Levene's results on the DIAL-3 composite scores. The boxplots in Figure 2 show that

the DIAL-3 data is skewed, but there were few outliers to the DIAL-3 scores. Due to all the data collected from the assumption testing, it was decided to perform the three two-tailed *t* tests for independent means for the study.

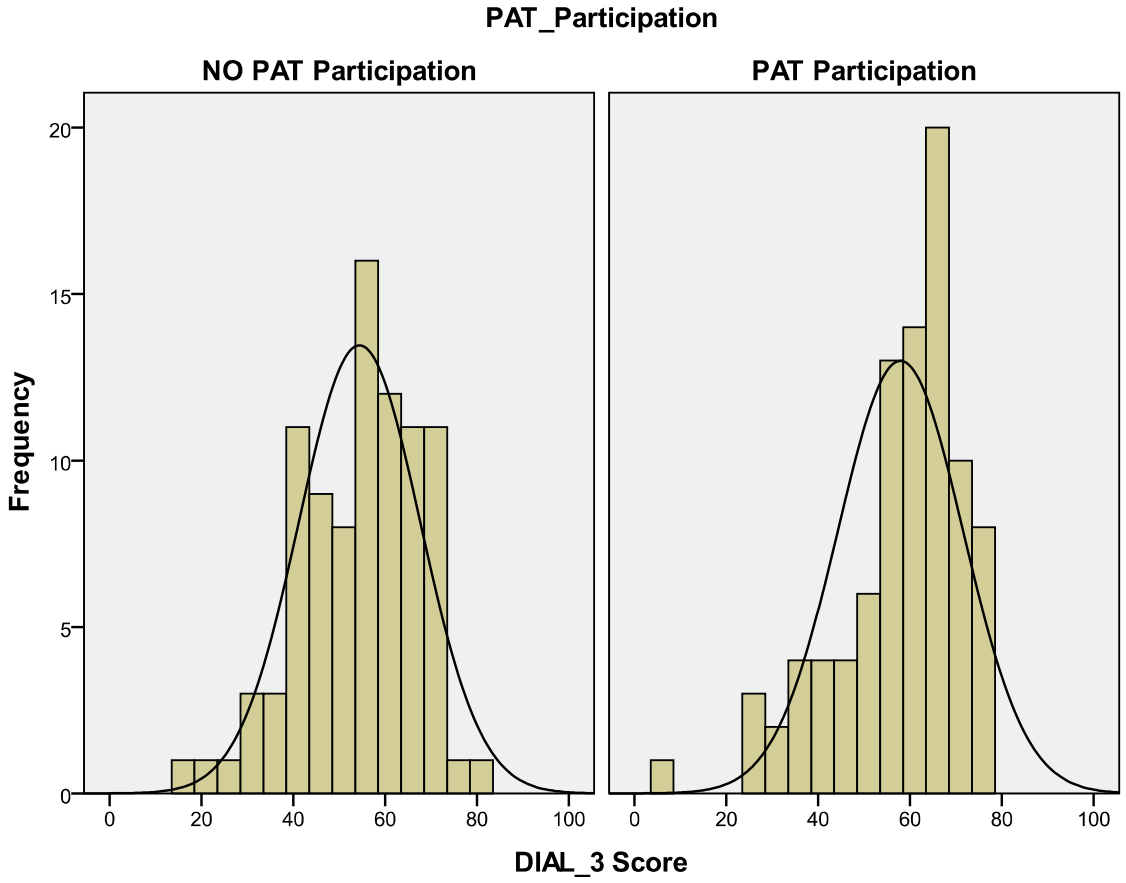


*Figure 1*. Histogram for DIAL-3 scores for PAT and non-PAT participants in 5th and 6th graders.

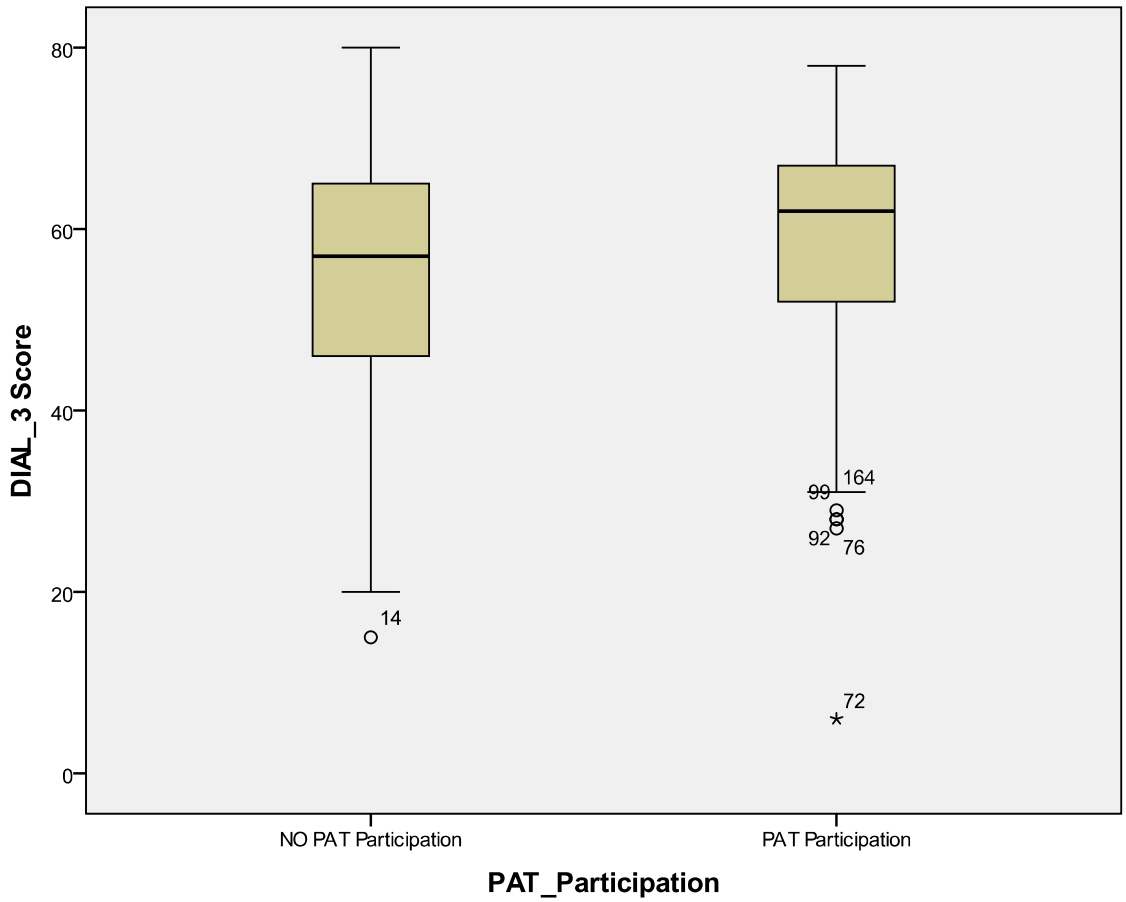


*Figure 2*: Boxplot for DIAL-3 Scores for PAT and non-PAT participants for 5th and 6th graders.

## Results of Hypothesis One

The first hypothesis stated that there would be a significant difference between the DIAL-3 composite scores of students in fifth- and sixth-grade who participated in the Eagle PAT program and the scores of fifth-grade students who did not participate in the Eagle PAT program. A two-tailed independent *t* test was conducted to compare the mean scores on the DIAL-3 between PAT participants and non-PAT participants. Table 4.2 contains the means and standard deviations of the scores on the DIAL-3. The difference between the two groups was not significant, $t(176) = -1.73$, $p = .847$

The Cohen's *d* = .27, so the effect size for this hypothesis indicates a small effect size. The data was analyzed using confidence intervals (CI) and effect size (ES). Zhang (2009) states the following about CI and ES:

> Confidence intervals for effect size are strongly recommended to be used as a useful supplement to and maybe even superior replacement for the *t*-test. Effect size indices such as Cohen's  are able to provide all information that is provided by the *t*-test as well as vital information not provided by the *t*-test such as magnitude of the effects and the precision of estimates (p.32).

The 95% confidence interval wass -7.46 to .49, which indicated that the results could fall from a large effect size in favor of not participating in the PAT program to a very large effect size in favor of the PAT preschool intervention. Cohen's *d* falls within the confidence interval for a very small positive effect size in favor of the Parents as Teachers Program.

Table 4.2

*Descriptive Statistics for DIAL-3 Composite Scores*

| DIAL-3 Score | n | *M* | *SD* |
|---|---|---|---|
| PAT Participation | 89 | 57.91 | 13.66 |
| NO PAT Participation | 89 | 54.43 | 13.19 |

## Results of Hypothesis Two

The second research hypothesis stated that there would be a significant difference between the scores of fifth- and sixth-grade students who participated in the Eagle's PAT Program and the scores of students who did not participate in the program on the MAP

third grade Communication Arts assessment. To compare the means for the two groups in this study, a two-tailed, independent *t* test was conducted. Based on Table 4.2, PAT participants scored slightly higher on the third grade MAP Communication Arts test than non-PAT participants, but the scores were not significantly higher.

Table 4.3

*Descriptive Statistics for 5th and 6th Graders on the MAP 3rd Grade Communication Arts Test.*

| MAP CA 3rd Grade | n | *M* | *SD* |
|---|---|---|---|
| PAT Participation | 89 | 645.70 | 30.29 |
| NO PAT Participation | 89 | 638.18 | 35.24 |

The difference between the two groups was not significant, $t(176) = -1.53$, $p = .23$ Students in the PAT group had a higher mean score on the third grade MAP Communication Arts test ($M = 645.70$), but the scores were not significantly higher than the non-PAT group ($M = 638.18$). Cohen's $d = .24$ for this hypothesis showed a small effect size. The 95% confidence interval is -2.21 to 17.24, which indicated that the results could fall from very large effect size in favor of not participating in the PAT program to an extremely very large effect size in favor of the PAT preschool intervention. Cohen's *d* falls within the confidence interval for a small positive effect size in favor of the Parents as Teachers Program.

The histogram is unimodal and approximately symmetric. The PAT group does appear to have scores that are more positively skewed than the non-PAT group. As

shown in Figure 2, the scores in the PAT group have a slightly larger distribution of higher scores on the third grade MAP Communication Arts test.

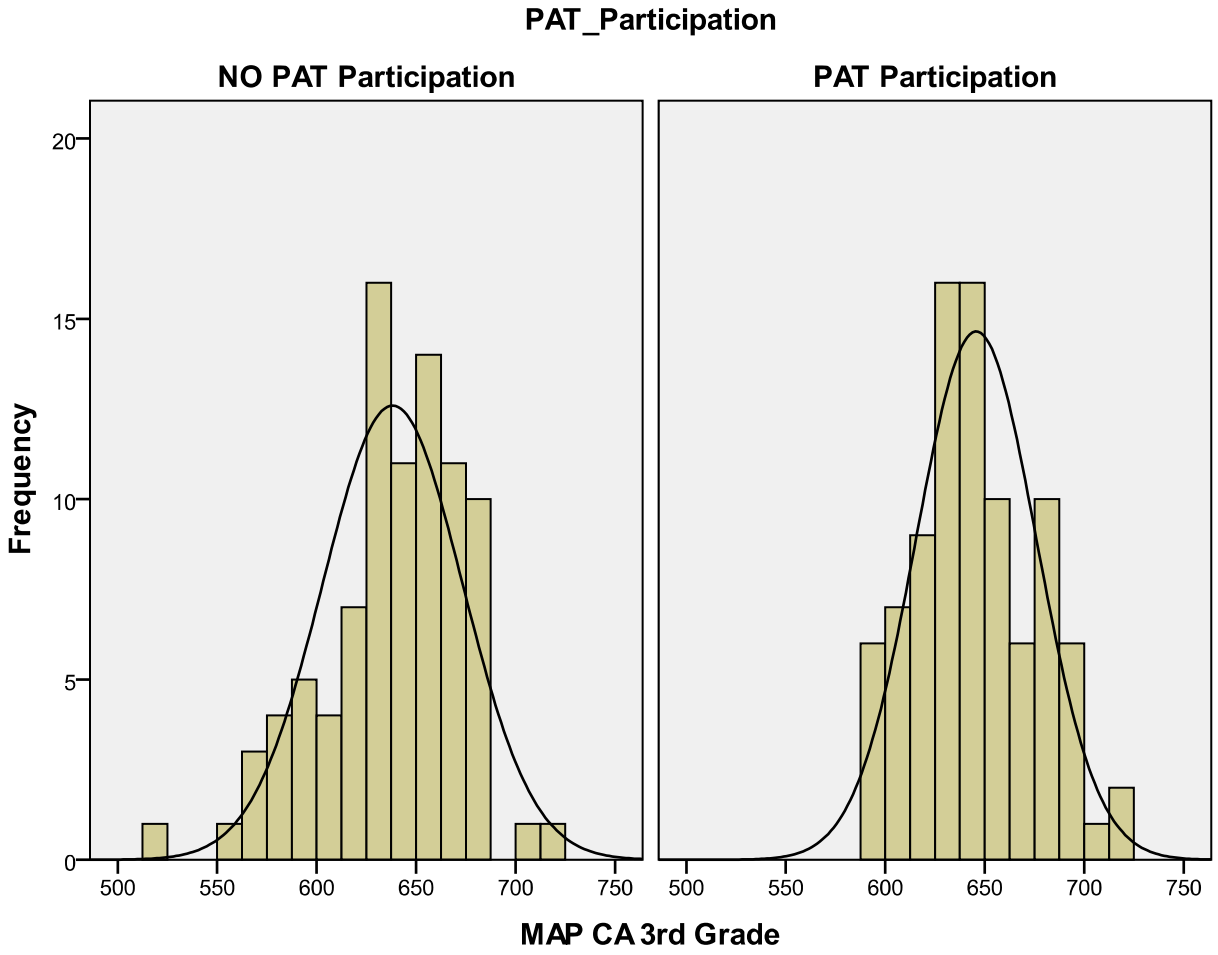


*Figure 3.* Histogram for PAT and non-PAT 5th and 6th grade students on the 3rd grade MAP Communication Arts test.

**Results of Hypothesis Three**

A comparison of the mean scores on the fourth grade Communication Arts MAP test for current fifth- and sixth-grade students who participated or did not participate in the Eagle's PAT program was conducted through the use of an independent two-tailed *t*

test. In this hypothesis, participation in the Eagle's PAT program was the independent variable.

Table 4.4

*Descriptive Statistics for 5th and 6th Graders on the 4th grade MAP Communication Arts test.*

| MAP CA 4th Grade | n | *M* | *SD* |
|---|---|---|---|
| PAT Participation | 89 | 667.28 | 32.78 |
| NO PAT Participation | 89 | 663.72 | 31.92 |

The difference between the two groups was not significant, $t(176) = -.73$, $p = .68$ Students in the PAT group had a higher mean score on the third grade MAP Communication Arts test ($M = 667.28$), but the scores were not significantly higher than the non-PAT group ($M = 663.72$). Information provided in Figure 3 was used to evaluate the normality in the comparison of mean scores. The histogram shown in Figure 4 indicates that scores obtained in both groups are near normal distribution of scores.

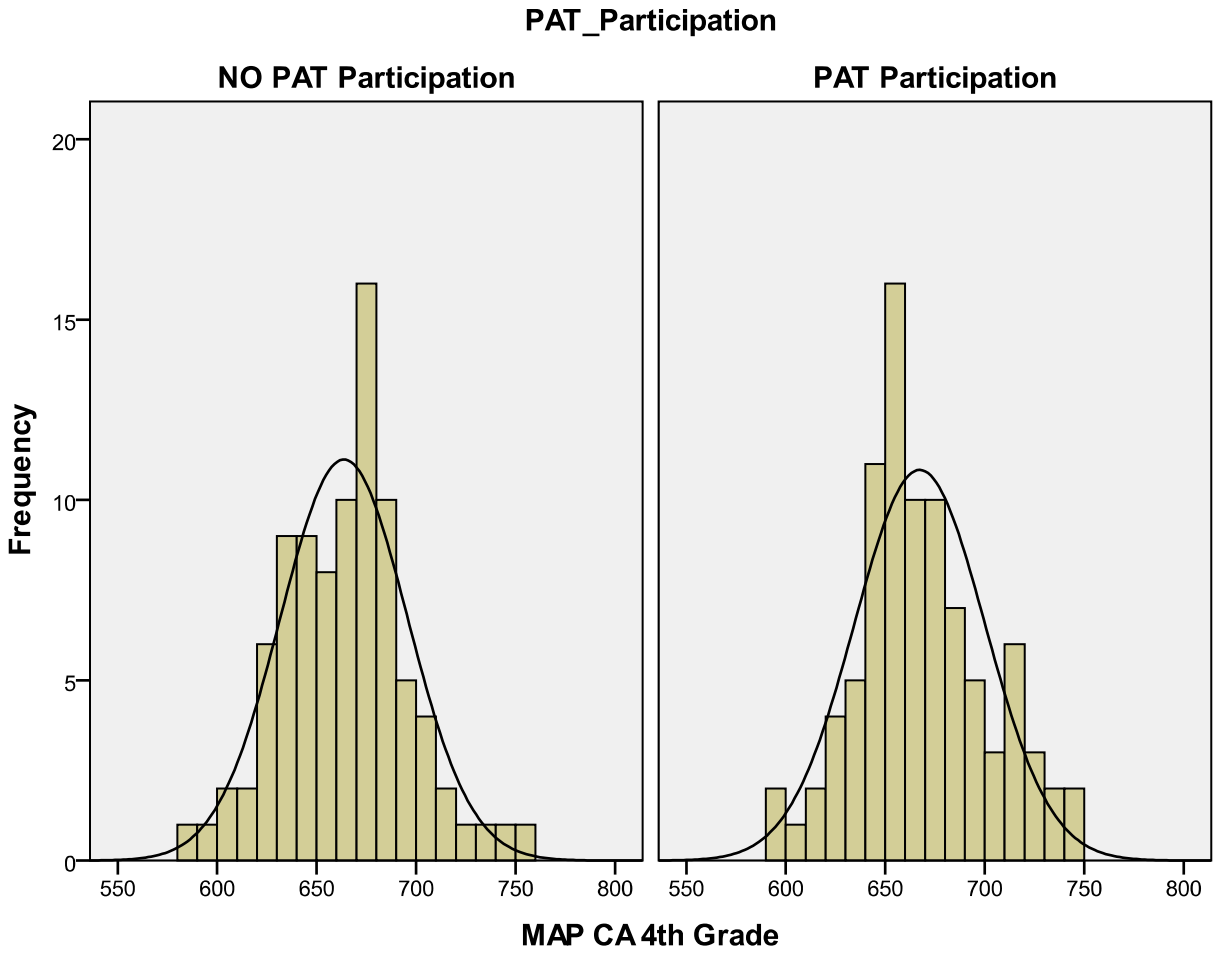


*Figure 4.* Histogram for PAT and non-PAT 5th and 6th grade students on the 4th grade MAP Communication Arts test.

The Cohen's *d* = .11, so the effect size for this hypothesis indicates a very small effect size. The 95% confidence interval is -6.01 to 13.13, which indicated that the results could fall from a large effect size in favor of not participating in the PAT program to a very large effect size in favor of the PAT preschool intervention. Cohen's *d* falls within the confidence interval for a very small positive effect size in favor of the Parents as Teachers Program.

## Results Summary

Three hypotheses were examined to compare students' performance on the DIAL-3, the MAP third grade Communication Arts test, and the MAP fourth grade Communication Arts test. Mean scores from these standardized assessments were analyzed using the difference in mean between students in the Eagle's Parents as Teacher group and students who did participate in the program. Matching characteristics were employed in the study, so that all students were matched on gender, ethnicity, and socioeconomic status. The results show that there was no significant difference in students who participated in the PAT program and students who did not participate in the program, but PAT participants did obtain slightly higher mean scores on all of the standardized assessments used in this study. Chapter Five discusses the results, the implications, and the need for future research from conducting this research.

# CHAPTER FIVE: DISCUSSION

The purpose of Chapter Five is to review the results of the study and discuss the findings. The chapter is divided into four sections: (a) discussion, (b) limitations, (c) implications and recommendations for future research, and (d) conclusions.

## Summary of the Findings

With the implementation of No Child Left Behind (NCLB, 2008), states and schools have been exploring educational interventions that will impact reading achievement in early elementary school. The mandates of NCLB have given schools until a child reaches the end of third grade to be reading on grade level. With only four grades in a typical elementary school to effect this change, many in education are looking to programs to maximize more opportunities to intervene with the child.

## Research Question One

The first purpose of this causal-comparative study was to compare the standardized test scores on the DIAL-3 Composite for current fifth- and sixth-graders who participated in the Eagle Parents as Teachers Program from 1999-2006 with current fifth- and sixth-graders in the Eagle School District who did not participate in the PAT program. The research sample included 178 students who were paired into a group of 89 PAT participants and 89 non-PAT participants. Each pair was established by matching each participant on gender, ethnicity, and socioeconomic status.

The results of the two-tailed *t* test indicated that the mean score on the DIAL-3 composite for children participating in the Eagle PAT program was higher, but not significantly higher than the mean score of non-participants in the program. PAT students scored an average 3.62 points higher on the DIAL-3 than non-PAT participants.

From the scores obtained in this study, PAT does not significantly affect academic achievement on the composite DIAL-3 score.

In the literature review, previous PAT research was explored that employed a kindergarten entry test (Pfannenstiel et al., 2003; Zigler et al., 2008). The kindergarten entry test used in the past study could only be used in a state-wide study of the program. This study employed a commonly used preschool assessment that is implemented individually to assess each child. By using the DIAL-3, this research built upon previous studies by using a commercially available instrument. The DIAL-3 is a reliable and valid screening measure to allow school districts a method to longitudinally track each student's academic performance in school.

The findings from the DIAL-3 indicate that there are no significant differences for mean composite scores for the PAT group and the non-PAT group. This finding is contrary to previous research on the PAT program that indicated that PAT students do score higher on school entry exams than the average score for that test (Pfannenstiel, Seitz, & Zigler, 2003; Pfannenstiel, Seitz, & Zigler, 2008). When the results for all students are graphed in a histogram in Figure 1, it is evident from the graph that the PAT participant's DIAL-3 scores are slightly more positive and higher scores than non-PAT participant's scores.

The DIAL-3 results are similar to research that indicates that a universal preschool's effect on positive academic change is slightly positive or ambiguous (Loeb, Bridges, Bassok, Fuller, & Rumberger, 2007). The DIAL-3 average scores do indicate that PAT participants score between the $55^{th}$-$74^{th}$ percentiles while non-PAT participants score between the $54^{th}$-$61^{st}$ percentiles (Mardell-Czudnowski & Goldenburg, 1998,

p.117-118). These percentiles indicate that PAT participants do score in a higher percentile bracket, but the difference in scores between the non-PAT participants is not significant.

**Research Question Two**

In Research Question Two, current fifth- and sixth-grade students who participated in PAT were compared with students who did not participate in PAT by using the mean score on the MAP Communication Arts third grade assessment. In this two-tailed *t* test comparison, PAT students scored an average of 646 points on the assessment while non-PAT students scored an average of 638 points. The findings were not significant. The results indicate that PAT does not significantly affect scores for students on the MAP Communication Arts third grade test.

The results from the MAP Communication Arts third grade were similar to previous research for mean scores achieved on this test (Zigler, Pfannenstiel, & Seitz, 2008). The average score for a PAT participant in the 2008 study was 639.5 points as compared to the mean score in this study of 646 points. The 2008 study compared PAT participants' scores on the third grade MAP Communication Arts test. This study endeavored to compare PAT participants to non-PAT participants in the same school district. The 2008 study (Zigler et al., 2008) found that participation in the PAT Program had a direct and indirect effect on third grade MAP achievement. Using the Statistical Analysis System (SAS) and Covariance Analysis of Linear Structural Equations (CALIS), a causal model was tested for examination of residuals, the probability of the values for chi-square, and goodness of fit indexes. These measures found direct and indirect effects on third grade MAP Communication Arts achievement and the length of

time the child spent in the PAT Program (Zigler et al., 2008). This study found that PAT participants did score an average of 8 points higher that non-PAT participants, but the scores were not significantly different.

The scores on the MAP assessments are organized in categories. Scores that are at or above 648 are deemed Proficient in third grade (DESE, 2011c). The average score for a PAT participant on the third grade MAP Communication Arts test was 646. This score was only two points from Proficient on the MAP assessment. Schools desire students to be Proficient on the MAP assessment since funding, accreditation, and state sanctions are determined from the assessment scores. With the PAT group scoring very close to the Proficient score in third grade, the school district might find that the PAT intervention is an effective program since children who did participate in the program scored eight points closer to Proficient than non-PAT participants.

**Research Question Three**

The purpose of Research Question Three was to compare the same PAT and non-PAT pairs used in Research Questions One and Two on their mean scores on the MAP Communication Arts fourth grade assessment. PAT participants had a mean score of 667 points as compared to non-PAT participants mean score of 664 points. The mean scores were not significantly different for PAT students and non-PAT students.

The mean scores for both the PAT group and the non-PAT group on the fourth grade MAP Communication Arts scores were in the Proficient range. The PAT group scored higher on this assessment than the non-PAT group, but the difference was not significant. With both groups meeting AYP, the school district showed that children taking the fourth grade MAP assessment had an average passing score. This is positive

academic progress for both groups, since neither group had a Proficient score on the third grade exam.

## Assumptions and Limitations

For the purposes of this study, several assumptions concerning the instruments and personnel were made. The DIAL-3 and the MAP tests have been evaluated in multiple studies to show the validity and reliability of these assessments to measure areas of achievement and development (DESE, 1999; Mardell-Czudnowski & Goldenburg, 1998). Scores from these assessments were assumed to be valid measures of academic growth, due to the reliability and validity measurements reported for the MAP and the DIAL-3.

A second assumption was that the Eagle School District hired qualified individuals to teach as parent educators in the Eagle's Parents as Teachers Program and to teach in the five elementary schools in the school district. It was also assumed that all parent educators, DIAL-3 implementers, and MAP administrators were trained to administer their respective assessments in an educationally qualified manner. It was assumed that the parent educators implemented the *Born to Learn Curriculum* (2005) during every PAT home visit. Another assumption was that the DIAL-3 implementers and MAP administrators followed the test protocols to effectively standardize the administration of both tests.

Elementary schools within the Eagle School District were presumed to have taken part in the MAP assessments as required by Missouri statutes. It was also assumed that the Eagle School District would provide access to the testing data and support as deemed necessary for the research.

In a causal-comparative study, lack of randomization, manipulation, and control are limitations to the study (Gay, Mills, & Airasian, 2009). To illustrate that an early childhood program increases academic achievement, the DIAL-3 screening and Communication Arts MAP tests were used in this study, but each assessment has the limitation of unrestrained variables. In an attempt to control for extraneous variables, students who participated in the PAT program were matched with students who did not experience the PAT program on three factors: socioeconomic status, gender, and ethnicity (Gall, Gall, & Borg, 2007). By matching students on three factors, confounding variables were endeavored to be controlled in the study. The students in the research were also matched with a student in their current grade to limit extraneous variables due to differences in age with the two different grades that were used in this study.

A second limitation to the study was that archival data was used. Archival data may have been recorded incorrectly causing the data to indicate inaccurate results. If the incorrect data was recorded, incorrect scores were retrieved. To prevent discrepancies with archival data in sampling one grade level, two grade levels were used in the study. In an effort to control for variations that occur in grade levels achievement, two classes were sampled on the same assessments.

Since attendance information was only recorded and not used as a matching characteristic for Eagle pre-Kindergarten participation, unknown preschool experiences are a third limitation of this study. Archival data for pre-Kindergarten participation in the Eagle School District can be retrieved from each student's permanent file, but participation in any other program such as Head Start, private preschool, or religious preschool was not known for the research.

Inconsistent administration of the DIAL-3, MAP test, and the PAT program by teachers and parent educators may have affected the validity of this research project. The administration of the third and fourth grade MAP Communication Arts tests was supervised by many classroom and special education teachers in the Eagle School District. Different administration of the MAP test can affect scores. Parent educators in the PAT Program were all trained in the *Born to Learn Curriculum* (2005), but implementation of the lesson plans can vary due to the parent educator. This potential variation was seen as a limitation to this study.

Matching for participation in special services was not included in this study, so students were not statistically controlled if they participated in special services in the Eagle School District. Students with an Individualized Education Plan (IEP) may have been paired with a student who did not participate in the program. Due to this limitation, low cognitively performing children may have been matched with a cognitively higher peer. Matching on socioeconomic, gender, and ethnicity characteristics was used to limit threats to validity, but the scores reported in the study might not truly represent the effect of the PAT program due to the unconstrained variables.

All previous quantitative studies on the PAT Program were conducted at the state level, so it is important that studies be performed on one school district. This study allows school districts the ability to evaluate their own PAT program for its impact on their students in the school district. The research was thus limited to one school district and the students in that school district, and only generalizable to this population.

## Discussion

A consideration for the study is that all students who had a DIAL-3 score, a MAP Communication Arts third-grade score, and a MAP Communication Arts fourth-grade score and could be matched on three variables were included in the study. Children were not excluded from the study because of academic or cognitive ability. It is not known if there was a higher representation of children with special needs in the PAT group. Due to the mandate in the Economic Opportunity Act of 1965, school districts must screen and give services to children with special needs. To meet this mandate, when families of children with special needs are identified, the school district offered the Parents as Teachers program to these families. Therefore, the PAT group may have included more children with special needs than the non-PAT group, possibly lowering the PAT participants' mean score.

The results from this study also showed that on the DIAL-3, the MAP Communication Arts third grade test, and the MAP Communication Arts fourth grade test, every mean score was higher for the children who participated in PAT. Due the nature of a causal-comparative study, the conclusion cannot be drawn that the PAT program was responsible for the higher scores. However increasing Communication Arts scores is a goal for the Eagle School District, so the positive academic findings of this study may encourage the administration to continue use of the program.

With the implementation on NCLB, schools must prove that students are meeting grade competencies in Communication Arts and that those skills are either proficient or not proficient for the specified grade (NCLB, 2008). To increase the time for intervention, many schools are utilizing the PAT Program so that children have more

exposure to master skills in literacy. With the NCLB legislation tying monetary funds and school survival, schools must implement programs that effect the most academic impact on the school district's students. In NCLB, educators are also supposed to use research driven curriculum and strategies to enhance academic improvement in the school (NCLB, 2008).

## Implications and Recommendations

The Eagle School District should do further review of the PAT program to clarify if there is a significant difference in academic achievement for participants in the program. The Eagle School District should also assess the effects of the PAT program on children's emotional, social, and physical skills. The PAT program's approach to teaching children is to focus on the whole child. These skills may be positively affected by the PAT program. If the program is shown to be continually ineffective, the school administration may need to restructure preschool funds to more effective, research-proven interventions.

To build upon the current research, future studies should either add participation in special services as a matching characteristic or as an independent variable. Special services with Individualized Education Plan (IEP) similarities should be paired to understand if children with similar learning needs perform differently after participation or non-participation in the PAT program. This matching might yield different results than this study due to the researcher controlling for special service differences in children.

A longitudinal study to follow both a PAT group of students and a non-PAT group of students throughout their preschool through high school academic careers would

be beneficial since no other research has employed that approach. All other PAT quantitative research compared PAT students to the average scores on assessments with others in the state of Missouri. The comparison contains PAT students' scores in both statistics. By having separate groups, research could show if there are differences between the two groups.

In addition, further research by private researchers should be conducted on the PAT program. The limited number of studies that have been conducted on the PAT program have been performed by departments of education which also fund the PAT program. Additional studies by independent researchers could either support or refute the findings in this study

## Conclusion

The mandates of NCLB require that all children be able to read on grade level by the end of third grade. With a limited number of school years to effect this change, school districts must employ the use of research-proven, effective programs. The research in this study indicated that there was no significant difference on the DIAL-3 composite, MAP Communication Arts third grade, or MAP Communication Arts fourth grade mean scores for students participating in the Eagle School District's PAT program when compared with students not participating. Additional studies should be conducted at the Eagle School District on academic, social, and physical skills and in other districts with PAT programs to either validate or refute these results. These results should be used to determine if the PAT program should continue in Missouri.

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## APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL

LIBERTY
UNIVERSITY

The Graduate School at Liberty University

December 8, 2011

Jill Arnold
IRB Approval 1220.120811: The Parents as Teachers Program in Missouri and the Resulting Difference in Academic Effects for Fifth and Sixth Grade Students

Dear Jill,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB and we wish you well with your research project.

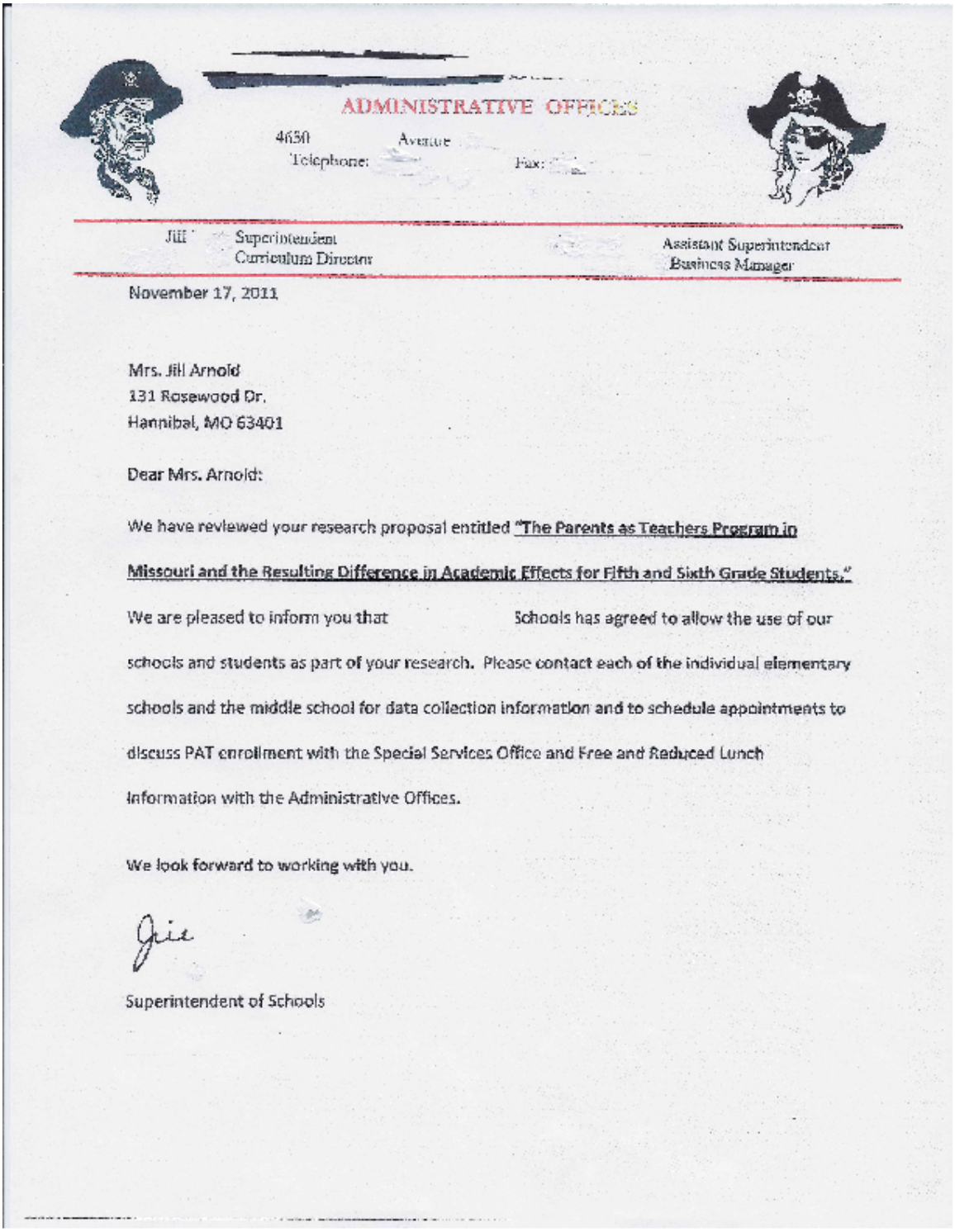
Sincerely,

**Fernando Garzon, Psy.D.**
*IRB Chair, Associate Professor*
**Center for Counseling & Family Studies**

**(434) 592-5054**

LIBERTY
UNIVERSITY
*40 Years of Training Champions for Christ: 1971-2011*

## APPENDIX B: EAGLE SCHOOL DISTRICT APPROVAL



ADMINISTRATIVE OFFICES

4650 Avenue
Telephone: Fax:

Jill Superintendent
Curriculum Director

Assistant Superintendent
Business Manager

November 17, 2011

Mrs. Jill Arnold
131 Rosewood Dr.
Hannibal, MO 63401

Dear Mrs. Arnold:

We have reviewed your research proposal entitled "The Parents as Teachers Program in Missouri and the Resulting Difference in Academic Effects for Fifth and Sixth Grade Students."

We are pleased to inform you that Schools has agreed to allow the use of our schools and students as part of your research. Please contact each of the individual elementary schools and the middle school for data collection information and to schedule appointments to discuss PAT enrollment with the Special Services Office and Free and Reduced Lunch Information with the Administrative Offices.

We look forward to working with you.

Jill

Superintendent of Schools