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THE PARENTS AS TEACHERS PROGRAM AND KINDERGARTEN
LITERACY READINESS

by

Teresa Lynn Ockey

A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Educational Specialist

Department of Counseling Psychology and Special Education
Brigham Young University

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BRIGHAM YOUNG UNIVERSITY

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This thesis has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

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ABSTRACT

THE PARENTS AS TEACHERS PROGRAM AND KINDERGARTEN

LITERACY READINESS

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The purpose of this study was to assess the Parents as Teachers program and its relationship to literacy and school readiness among kindergarten students enrolled in three elementary schools in southwestern New Mexico, using the Dynamic Indicators of Literacy Skills assessment system. Data were collected by trained teachers and parent volunteers and used by the Parents as Teachers program as part of their program evaluation. Analysis of these data showed that the PAT program is having positive results for participating students in this school district in comparison to non-PAT kindergartners. The overall results from this study support continuing implementation of the PAT program in this area because it appears that PAT children are entering school with sufficient literacy readiness skills based on the Fall 2005 and Spring 2006 outcome of the DIBELS assessment outcome.

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INTRODUCTION

Dramatic developments in technology and research in the last decade have created a new widespread awareness of the importance of early childhood education. Since the initiation of the Early Head Start curriculum in 1965, the trend of early intervention has continued. Early Head Start is a comprehensive, early intervention program that is recognized as a leading model among early intervention programs. Its model has been adopted and modified by many early intervention programs, such as Even Start and other school based pre-kindergarten programs. The common goal of such programs has been their focus on enhancing children's development while strengthening the family.

Early Head Start was founded on the idea that the preschool years are a critical to a young child's verbal ability, general intelligence, and basic school achievement. This idea has grown and extensive research and program development related to the early years of life has led programs to expand their services and re-evaluate their current efforts. The search for evidence of effective program models and best practices in supporting young children's development has been an important focus of hundreds of early intervention programs in existence across the nation.

One particular intervention program that has specifically turned to early intervention as an option in broadening parent education and family support is Missouri's Parents as Teachers program (PAT). Missouri educators in the 1970s developed the concept of Parents as Teachers when they noticed that children were beginning kindergarten with varying levels of learning readiness. The PAT program is based on the work of Burton White, who believed that all families would be aided by the receipt of expert knowledge on parenting (Spiker & Wagner, 2001). With funding from the Department of Elementary and Secondary Education and the

Danforth Foundation, Parents as Teachers Began in 1981 in Missouri as a pilot project for first-time parents of newborns (Rouse & Winter, 1990). In 1985, state funding was implemented in all Missouri school districts. Since 1989, due to evidence of the program's benefits and cost effectiveness, the program has expanded to all 50 states and other countries. According to the 2005 Annual Program reports there are 3,039 PAT program sites in the U.S. and internationally for the year 2004-2005 (Our Numbers, 2005). Around the country, PAT programs are often sponsored by school districts, hospitals, churches, and social service agencies, reflecting the emphasis of the program on preparing children for school.

Early childhood intervention programs such as PAT are based on the premise that it is possible to alter outcomes such as achievement, social, and literacy skills in young children because the early years of a child's life are critical for optimal development. Research has indicated that working with parents during this period of a child's life provides opportunities to promote children's readiness for school and set them on a path for school success (Hormuth, 1998). One particular study, The Missouri School Entry Assessment Project, coordinated by the University of Missouri-Columbia focused particularly on kindergarten school readiness. This study assessed 3,500 kindergarten PAT children's school readiness skills by administering the 65-item School Entry Profile, KABC Achievement Scale, and the Zimmerman Preschool Language Scale (PLS). The parents in this study engaged in more literacy activities at home, demonstrate more school involvement, and supported their children's learning in the home. The Parents as Teachers National Center's web page highlighted the results of this study and summarized it by stating that the "children rated 'above average' in achievement and language ability...and that PAT parents demonstrated high levels of school involvement, thereby taking a more direct and proactive role in their child's literacy development" (Albritton, Klotz, &

Roberson, 2003). Overall, the results in this study concluded that the program helped parents gain knowledge of child development, good parenting practice, and confidence in their parenting skills (Albritton et al.). In addition, involvement in the program helped parents set their children on a positive developmental trajectory for school success.

For years the general hope for PAT along with other intervention programs has been that changes in parent involvement would result in positive developments for children. The shift in involving parents in the process of their child's development and education has been a principal goal of the federal Head Start program since its origin in the 1960's. Since many early childhood intervention programs have broadened their focus to include parents, research in the field of early childhood development has focused on some of the most compelling studies that have come from these programs, showing that trajectories of those at risk can be altered by providing stimulating, stable, and caring environments (Judge, 1993). In addition, gains in children's academic performance and positive school adjustment, as well as improved educational programs, have been identified the main benefits of parental involvement in schools (Duch, 2003). Extending this line of research, this study will focus on programs that have been developed from the foundation of the Head Start program to the Parents as Teachers program and how these programs have impacted children's academic performance. This research is in line with this study which aims to increase understanding of the Parents as Teachers program and its relationship to literacy and school readiness among kindergarten students enrolled in the school district in southwestern New Mexico.

LITERATURE REVIEW

The Need for Early Childhood Education Support Programs

In today's society the risk of social, economic, and health problems is extremely high for children living in the United States (Jones, 1993). The continual need for comprehensive services and programs for at-risk children and their families is evidenced by variable factors that Jones discusses in her research. Her article describes the demographic, social, and political variables influencing the development of young children, their relationship to the need for comprehensive services, and early childhood educators who possess the competencies to serve diverse groups of young children (Jones, p. 3).

Poverty

Since the 1800s, early education intervention has been advocated as a strategy to offset the effects of economic disadvantage and handicapping conditions. The number of children living in poverty in the United States is at an all-time high. Despite stereotypical portrayals of poverty, Hispanic and black children are more likely to live in poor families than white and Asian Children (Children in Poverty, 2003). In 2006, 14 percent of white children and 12 percent of Asian children lived in poor families, compared with 27 percent of Hispanic children and 33 percent of black children (Children in Poverty). Albritton et al., (2003) report that 14.1 million children were living in poverty during the 17 years of childhood, 81% of children in non-married households live in poverty, and 63% of children whose head of household had fewer than 12 years of education were touched by poverty.

In today's society, children also make up the fastest growing fragment of the homeless population. Today, there are over 100,000 homeless children and many of them are forced to find shelter in motels, emergency housing, or automobiles (Albritton et al., 2003). A child who is

affected by homelessness is experiencing loss of more than a building, but they also no longer have the comforts of family routines or the support of their social network. The overall future well-being of children who are homeless is threatened by hunger, poor nutrition, health problems, anxiety, depression, and educational underachievement. Their condition is further compounded by barriers to accessing available services like public education.

The continuous cycle of poverty and under education is represented in the daily experience many at-risk families and children. For example, children from lower socioeconomic backgrounds often enter school lagging behind peers in school readiness skills. These conditions and consequences add an increased risk for high retention rates, poor performance, and an increase risk for high school dropout which continues to a state of national concern.

In addition, these dropouts are more frequently unemployed, earn lower incomes, have more limited job opportunities, are more likely to receive public assistance, and make up a share of the nation's prison and death row inmates. In the FDCH Government Account Report, Shaul, Director of Education, Workforce and Income Security Issues, stated, "about 30 percent of federal and 40 percent of state prison inmates are high school dropouts thus imposing a considerable cost on all levels of government" (Albritton et al., 2003, p. 17).

The issues of dropping out and dropping out prevention can be directly related to our total economic and social structure which includes poverty, unemployment, discrimination, the role of the family, social matters, the welfare cycle, child abuse, and drug use. More specifically the risk increases when the following factors impact the lives of young children: stressful/unstable home life, socioeconomic status, minority memberships, single parent household, poor education of parents, homelessness, violence, substance abuse, and other related factors. Albritton et al. (2003) reported that over the last decade, between 347,000 and 544,000

tenth through twelfth grade students dropped out of school each year. In the past decade these numbers have reached an all time high (Albritton et al).

Overall, the variables discussed have a significant impact on the need for early support programs for young children and their families. The undeniable realities of poverty are complex and can be devastating to the development of young children. The cyclical and interrelated problems since the 1960s are continuing to have traumatic impacts in the everyday lives of those specifically at risk.

Violence

There are also an increasing number of children living in neighborhoods plagued with drugs and violence. The dramatic increase of violence in the United States is atrocious. On a daily basis, children in this country witness or are victims of a violent act (Jones, 1993). In a 1991 study by Daro and McCurdy reported the types of abuse cases to be 27% physical abuse, 15% sexual abuse, 46% neglect, and 9% emotional abuse (Jones). These cases appear to be attributed to social and economic conditions, specifically poverty and substance abuse. Children who are witnesses or victims of abuse will often exhibit a variety of behaviors and attitudes such as having little sense of personal identity, a lack of self-esteem, and difficulties developing relationships (Jones). It is clear that a child's normal development is hindered when the child's surroundings or his/her home is a place of violence.

Teen Pregnancy

In 2001, the National Campaign to Prevent Teen Pregnancy report indicated the United States had the highest rate of teen pregnancy with nearly a half a million teen births. Compared to women who delay childbearing, teen mothers are less likely to complete high school and are more likely to end up on welfare (Albritton et al., 2003). Children born to teen mothers are also

more likely to do worse in school than children born to older parents, they are also more likely to be abused or mistreated. In addition, Albritton et al. (2003) points out that these children are “fifty percent more likely to repeat a grade, are less likely to complete high school, and tend to perform less on standardized tests (p.16).” It is evident that many teenage parents today have little or no parenting skills to assist them through these trying times, from these appalling circumstances it is the child who often suffers.

Health Concerns and Medical Needs

A new population of children entering early education program has risen due to the progress in medical technology in the last decade. In the 15th Annual Report to Congress on implementation of IDEA, the number of children reported as “other health impaired” increased by almost 30% over the last four years (Judge, 1993). These increases are due to the survival of infants born with very low birth weight and more aggressive management of children who are chronically or terminally ill and those who are victims of trauma (Judge). These children who are medically challenged usually have severe multiple disabilities, require medical services, and tend to have developmental delays. Recently, concern has focused on the diverse needs and outcome of these children affected by being medically challenged.

One such concern has been that on the number of children born to mothers with HIV and AIDS, as well as those addicted to drugs. In today’s generation, more children who are HIV positive or have AIDS are enrolling in early childhood programs. Jones (1995) reported that the number of children with pediatric AIDS is expected to rise. While these children may or may not require special education they do bring additional concerns for early childhood professionals (Judge, 1993). Those families living with AIDS may need additional social and financial support, psychological and/or counseling services, as well as additional medical needs. Children who are

medically fragile are not only those affected by the AIDS epidemic but those affected by the parental drug use.

Children born addicted to drugs is another national concern of those who are medically challenged. Barrett, Chasnoff, and Landress (1990) reported that approximately 400,000 children each year are born to mothers who used crack or cocaine during pregnancy. Without early intervention, children showing the effects of crack or cocaine will experience a continuum of problems (Jones, 1995). Evidence has shown that infants born addicted to crack are at risk for Sudden Infant Death Syndrome (SIDS), apnea, sleeping disorders, and convulsions. Toddlers who are addicted to crack may exhibit hyperactivity, inability to focus, and lack of awareness of others. Preschoolers have shown to be unpredictable at times and prone to aggression. Whereas older children addicted to crack exhibit distractible, disruptive, and impulsive behaviors. It is apparent that the variable effects of parental drug abuse on these children vary in intensity and rate. Considering the issues facing young children, the current focus on early childhood could not be more appropriate and timely (Jones, 1995 or p. 3). Extensive support is needed by those children and families who are medically fragile due to chronic or terminal illness, substance addiction, or HIV and AIDS.

Family Structure

Through the years there have been changes in the typical family role and structure. The everyday problems at-risk children faced in the 1960's, 1970's, or even 1980's are much different than what today's children are encountering. These changes have often been influenced by economic, social, and political climate variables. More children are not being raised by their parents but by extended families, foster/adoptive parents, grandparents, or in blended families. In addition, the percentage of children living in single parent families have increased due to the

rise in separation, divorce, and never married parents and the number of children affected may be as high as 25% (Jones, 1995). Jones stated that today, one out of every four children lives in a single family household, this number includes unwed mothers and divorced parents. Research has indicated that any of these situations may be stressing for young children (Jones). For example, single parents tend to be more isolated from family and social support networks, which compounds the problem of raising children alone (Jones). In divorced situations, children may feel anger toward one or both parents; they may blame themselves for the divorce, or become depressed (Jones).

The changes that have occurred with the typical family role and structure have introduced a new awareness for the need for family support programs. Both children and parents are experiencing new stressors as a result of this change in the family. Family support networks can mitigate negative effects for many children by providing childcare, education, and intervention programs by skilled personnel.

Overview of Early Childhood Programs and Intervention Services

Since the early 1800s, European society has recognized the need for early childhood programs and intervention services as a result of the Industrial Revolution. One of the trends in education began during this time when programs were developed to help poor or at-risk children. During this period women and children worked long hours in factories, infants and small children were often times left alone the majority of the day neglecting their basic needs. The families suffered as a result and the record of infant mortality rate was at a devastating high (Albritton et al., 2003). In an effort to combat this dilemma, European society created the infant schools. These schools were developed to care for the poor and working class families who needed constant and proper care while their parents were away at work. In addition, the infant

school missions were designed to “save” these children by teaching them morality and religious study, to prevent these children from a life of crime and delinquency, and to reform their parents into model citizens. Over a period of time the need for the infant school movement grew throughout Europe, schools opened up in Great Britain, Scotland, Belgium, Germany, Italy, France, and later into the United States.

In the late 1820's the United States followed the lead of the European infant school movement and began to open infant schools in New York, Philadelphia, and Boston. In 1828 Boston's Infant School cared for children from eighteen months to four years old for a fee of two cents a day. Then in 1932 the Infant Schools diminished and the New York Public School society established primary schools. The fall of the Infant School was pushed by the trend that the best place to raise a child is in the home by the natural mother. Following this approach several movements took place, such as the Day Nursery Movement, the Nursery School Movement, and Emergency Nursery Schools. Unfortunately they all faded out due to the trend of the public opinion that a mother's place is in the home and that children should be cared for exclusively by her.

The launching of Head Start in 1965 was a precedent-breaking experiment which was initiated when President Lyndon B. Johnson declared the national War on Poverty crusade. Project Head Start was one of the largest comprehensive early childhood programs in the history of early intervention designed for children between the ages of three and five whose families' income fell below the poverty level. The emphasis of the Head Start program was established with a strong focus on parent participation and that the preschool years were a critical period in regards to the development of young children. The seven goals set out in the original planning meeting were to (History, Goals, and Values, 2006):

1. Improve the child's physical health and physical abilities
2. Help the emotional and social development of the child by encouraging self confidence, spontaneity, curiosity, and self discipline
3. Improve the child's mental processes and skills with particular attention to conceptual and verbal skills
4. Establish patterns and expectations of success for the child that will create a climate of confidence for future learning efforts
5. Increase the child's capacity to relate positively to family members and others, while at the same time strengthening the family's ability to relate positively to the child
6. Develop in the child and the family a responsible attitude toward society and encourage society to work with the poor in solving their problems
7. Increase the sense of dignity and self-worth within the child and the family

Head Start was initially launched as an eight-week summer program which embodied the basic belief in education as the solution to poverty during this time. It was designed to break the cycle of poverty by providing preschool children of low income families with a quality, comprehensive program to meet their emotional, social, health, nutrition, education, social services, and parent involvement components. In the summer of 1965 it was originally planned to open doors to a few thousand children nationwide but when more than 561,000 children showed up, each child was welcomed with open arms. In 1966 it received good press coverage and was considered a chief social program. During this time the Head Start administration went on record claiming that a six week program could “develop a positive self-concept, produce new levels of language competence, discover and correct an accumulation of five years' worth of medical problems, and convince parents that early intervention was a solution to all their

problems” (Albritton et al., 2003). In addition to claims made by the Head Start administration, the initial studies began to report I.Q. gains for the children who participated in the 1965 summer program. Nevertheless, it was also mentioned in these claims that by mid-year these initial gains were washed out in the regular school setting (Albritton et al.). Despite these claims, Head Start was valued and looked upon as the savior program for those in poverty.

An initial follow-up study of the original summer program, known as the famous Westinghouse report, was released in 1969. The study compared the summer program’s long term effects three years after the program of those originally involved in the program to one of over 100 centers across the country with a matched control group not enrolled in the Head Start program. The study found that Head Start children showed only moderate gains on standardized tests of cognitive ability and that these gains did not have any lasting impact (Albritton et al., 2003). The future of Head Start and other intervention programs were negatively impacted by the Westinghouse Report. Challenges arose regarding the effectiveness and lasting impact of programs for preschool children at risk, nearly costing the Head Start program of its future and funding. The program was believed to have been a failure rather than a program that strived to provide children with a jump start into the elementary years.

Through the following years, short and long term studies began to be published and slowly Head Start began to regain its popularity (Judge, 1993). During this period a report was released by the Office of Economic Opportunity indicating that the participants in the Head Start program did not lose any cognitive gains from this experience, but that the cognitive gains did level off allowing other children to catch up with them (Judge). The report also validated parental approval of the program and found a correlation between the children’s experience and parents who were more involved in the program (Judge). Another report concluded that those

children initially involved in the Head Start curriculum (a) had significantly higher rates of meeting school requirements, (b) were less likely to repeat a grade, and (c) were less likely to receive special education services than those children who were not involved in program (Judge). In 1977, a federally funded investigation of Head Start concluded that in the first and second grade those children who participated in the preschool program were close to or on target with the national norms. However, this investigation found that by the second or third grade, head start children did not necessarily show better achievement than non-head start children (Judge, 1993).

As Head Start began to regain its legitimacy once again other various types of programs were designed which shared the common goal of helping children achieve greater success in school (Judge, 1993). Some of these programs developed during this time included:

- Health Start which ran from 1971 to 1974 and offered health services to children under six
- Parent and Child Centers designed to provide services specifically to those under 3 and their parents
- The Child and Family Resource Center whose goal was to work with parents during the prenatal stages until the child turned eight
- Project Follow Through which focused on bridging the gap between the early cognitive gains attained and the apparent loss of gain in the early elementary years

These programs came out of the Head Start movement but many appeared to be short lived (Judge, 1993). Another important program that based its finding on Head Start and other early intervention projects was the Kenan Model, which was established in North Carolina. The Kenan Model was an intergenerational approach aimed to break the cycle of undereducation of

at-risk families by combining quality early childhood education with adult education and parenting training (Judge). The Kenan Model was based on four major components:

1. Adult education which provided GED or adult basic education to parents
2. Early childhood education which provided a quality education experience for at risk preschool children
3. Parent Time which offered parent training and support to parents
4. Parent and Child Together Time which provided activities for both parent and child to help these parents become active part in their children's education and literacy learning

Findings from the first year following implementation of this model found that those children involved in the program made significant academic gains while their parents gained a better understanding of their child's academic success and their roles in making this happen (Judge, 1993). Today the Kenan Model is known as Even Start and continues to be another major national initiative in early intervention. Its mission is to build healthy families by working with the entire family unit developing life skills, literacy skills, and a strong commitment to family wholeness breaking the cycle of poverty and illiteracy by improving the educational opportunities of low-income families (A Literacy Program Where Families Learn Together, 2005).

Evidently many programs have been developed since the 1960s in an attempt to focus and aid the families who are at risk. It took time but Head Start has regained its early popularity once again, and many other early intervention programs have come out of this movement. The trend continues today as many other early enrichment programs have come out of the Head Start

movement. They all share the common goal of helping children and their parents achieve greater success in school.

Reform Efforts to Advance Parent Involvement Nationwide

In education past and present, great value has been placed on early intervention. A growing interest has been placed on providing programs that help families support positive child development. Federal legislation relevant to education has been created and funded by millions of public and private dollars (Jones, 1995). For example, the following federal laws have been established for the inclusion of educating those with disabilities into the mainstream of general education: 1986 passage of Public Law 99-457 Amendment to the Education of the Handicapped Act, reauthorized as the Individuals with Disabilities Education Act (IDEA), and the Americans with Disabilities Act (ADA). The recognition of the importance of meeting the needs of children at risk is not new. In 1986, the passage of Public Law 99-457 Amendment to the Education of Handicapped Act (reauthorized as the Individuals with Disabilities Education Act, IDEA) extended early intervention services to young children through ages 3 through 5 and their families. The act requires that children with disabilities be educated in the least restrictive environment and to the maximum extent appropriate with their typically developing peers. Section 619 of IDEA requires states to provide public education to all eligible children ages 3 through 4 years of age (Jones). The Americans with Disabilities Act (ADA) is another legislative law passed that ensures the protection of children and adults with disabilities from discrimination in places of public accommodation, which include child care centers and family child care homes. This law removes barriers by providing services so that facilities, services, programs, transportation, and communication were available to all children.

Three federal laws required that schools promote parental involvement through intervention and literacy training: (a) the Reading Excellence Act (1998), (b) the Elementary and the Secondary Education Act, and (c) the Head Start Act. The basis of each program was to increase student achievement and parental involvement by

1. Providing interactive literacy activities between children and parents
2. Teaching parents how to be the primary teachers and partners in the education of their young children
3. Providing parent literacy training which could lead to economic self-sufficiency
4. Providing age appropriate education to help children prepare for success in school and in life

On October 21, 1998, President Clinton signed the Reading Excellence Act (REA) which allowed at-risk children to receive the support they need to improve their literacy skills. The Act, described in Albritton, et al. (2003) stated,

The Reading Excellence Program was designed to provide children with the readiness skills and support they need to learn to read once they enter school; teach every child to read by the end of third grade; and use research-based methods to improve the instructional practices of teachers and other instructional staff. (p. 12)

The focus of this act was to provide professional tutoring programs, family literacy, and transition programs for kindergarten students by awarding grants to state education agencies, which in turn award subgrants to eligible local school districts. Four years later, the 107th Congress reauthorized the 1965 Elementary and Secondary Education Act (ESEA) when President George W. Bush signed into law the *No Child Left Behind Act* of 2001 (Beckman, Robinson, & Rosenberg, 2005). The vision of this enactment was to close the achievement gap

between disadvantaged and minority students and their peers. The Executive Summary of NCLB stated that more emphasis would be placed on reading readiness skills for preschool children ages three to six years of age. A commitment was made that NCLB would ensure that every child would be ready to read by the end of the third grade by providing cognitive learning opportunities and literature rich environments.

On December 12, 2007, President Bush signed Public Law 110-134 Improving Head Start for School Readiness Act of 2007, reauthorizing the Head Start Program (Head Start Act, 2008). The Improving Head Start Act of 2007 authorizes the Head Start program through September 30, 2012. U.S. Rep. George Miller (D-CA) chairman of the House Education and Labor Committee stated (House Passes to Bill to Improve Head Start, Early Childhood Education Program, 2007) “Head Start has served our nation’s poorest children extremely well in the past four decades...this legislation builds on the program’s past experiences and integrates today’s best science on childhood development in order to provide Head Start children with a better future.” The revision of this law is intended to help more children reach kindergarten ready to learn by enhancing the program’s quality and by expanding its availability to more children by (Improving Head Start Act of 2007, n.d.):

1. Improving Classroom and Teacher Quality-Increasing teacher qualifications and directing the majority of new funds for program improvement activities, including significant new funds to increase teacher salaries.
2. Expanding Access-Authorizing \$450 million in new funding for fiscal year 2008 which will provide up to 10,000 more children access to the program, prioritizing expansion of the Early Head Start program and expanding services to additional Migrant and Seasonal Head Start and Indian Head Start Programs.

3. Strengthening the Focus on School Readiness-Ensures all programs use research-based practices to support the growth of children's pre-literacy and vocabulary skills and improves professional development and classroom practices to better support children's cognitive, social, and emotional development.
4. Promoting Accountability-To better ensure Head Start funds are used appropriately and efficiently and requiring underperforming programs to re-compete for their grants to ensure they are either replaced or quickly improved.
5. Ensuring Parental Participation in Program Governance-Maintains existing parent policy that help empower Head Start parents and allows them to be responsive to local needs.
6. Fortifying Comprehensive Services-Places greater emphasis on early identification of child and family mental health needs.

The overall goal of these reform efforts is to ensure access to high quality and developmentally appropriate preschool programs so that all children enter school ready to learn. Since the 1960's, a considerable amount of funds have been extended to preschool-aged children and their families so that they could be provided with cognitive learning opportunities and literature rich environments, so that they too can attain fundamental knowledge and skills needed to start kindergarten. In a number of agencies across the nation, support is given through grants providing a way for states to establish early interventions programs for those at risk. In addition, these legislative laws reflect the importance of child development and parent involvement within the context of the family, specifically recognizing that parents should be their child's first teacher and as such should have full access to needed training and support.

Parents as Teachers Program

The concept of early intervention for young children is not new. For almost fifty years meeting the needs of children and their families in poverty has been the commitment of the Head Start program. Since its inception, many programs continue to base their foundation on the principles of the Head Start movement in an attempt to help families support positive child development. The Parents as Teachers (PAT) program is one particular program that has stemmed from the Head Start Movement and is an example of a widely implemented, universal-access home visiting program that serves families throughout pregnancy until their child enters kindergarten. The program emphasizes positive parenting behavior as vehicle to achieve developmental benefits for children (Clayton & Wagner, 1999).

History

The PAT program was founded on the research of Dr. Burton White, of the Harvard Preschool Project, which focused on improving the quality of the educational system for children during the earliest years of life (Children Ready for School, Children Succeeding in School, 2005). Based on White's findings, PAT's programming is designed to provide age-appropriate information on a child's development in addition to improving parenting skills by promoting and fostering a child's intellectual and social development.

The PAT program is not limited to one particular group of students but is open to all children and families. PAT families come in all configurations, from all socioeconomic levels, and from rural, urban, and suburban communities. The program is provided at no charge to the participating family and participation is on a voluntary basis. However, families with special needs are often targeted for recruitment (i.e. teen parents, minority families, and families in poverty). The main components of the program is to provide the information, support, and

encouragement parents need to help their children develop optimally during the early years of life, regardless of family's demographic, geographic, or economic status.

Components of Parents as Teachers Program

The PAT program is based on two simple assumptions: babies are born learners, and parents play a critical role from the beginning in determining what their children will become (Winter, 1999). Its mission is to educate parents and to encourage parents to enhance their child's development. The program's major goals are to:

- Empower parents to give their children the best possible start in life through increased knowledge of child development, improving parenting practices, and by providing appropriate ways to foster growth and learning
- Provide early detection of developmental delays and health issues
- Prevent and reduce child abuse
- Increase children's school readiness and school success

The rationale on which PAT's mission and components are based is that all parents deserve to be supported in their role as first teachers, recognizing that with this improved understanding parents would feel comfortable in their role to help them develop responsive parenting skills necessary for them to provide enriched environments that support children's learning. Its mission is to increase educability and awareness of potential problems and to overall prevent school problems through strengthened early child development. The ultimate intended result is a healthy, well-developed child.

To achieve these goals PAT utilizes a "Born to Learn" model designed to focus upon the strength of the family to be their child's best first teacher (Winter, 1999). The Parents as Teachers Born to Learn model and content are based on reliable and current research in the areas of child

development, neuroscience, and school readiness (Parents as Teachers Research Overview: Key Outcomes for Families, 2005). The fundamental core components are: personal visits by certified parent educators, group meetings, developmental, health, hearing, and vision screening, and linkage with community resources.

Personal visits. Personal visits are the major service delivery component. Each visit focus on four domains: the child's language, intellectual, physical or motor, and social-emotional. During these visits, parent educators provide information and advice tailored to the stage of development of the individual child. Parent educators are required to follow a curriculum of developmental learning activities, model activities, and discuss age appropriate expectations, parenting issues, and practices. Personal visit also provide an ideal environment to promote literacy development. Trained educators emphasize the importance of being read to regularly during the preschool years, having a variety of printed materials available in the home, and encouraging the parents to stimulate the child's interest in reading. Trained educators routinely use age-appropriate books in home visits. During these visits they show the parent the kind of books the child will enjoy and model how to use them with the child. There are five essential elements of a complete, home visit: (a) rapport-building with the parent, (b) observation of the child with and parent information that sharpens the parent's observation skills of their child's development, (c) dialogue that addresses parenting issues skills, and (d) hands-on parent child activities and book sharing that are developmentally appropriate and that promote parent-child interaction (Albritton et al., 2003).

Group meetings. Parent group meetings provide opportunities to share information about parenting issues and for trained educators to provide information on child development. Meetings usually include a formal session with a video or speaker presentation, parent-child

interaction meetings, and/or workshop meetings. The videotape presentation includes a series produced by Dr. White outlining each of the several stages of development from birth through age three. During the discussion, time trained educators will share information regarding the child's stage of development, appropriate toys, age appropriate and educational activities as well as ideas about inexpensive alternative to traditional toys (i.e. homemade playdough).

In addition, group meetings build internal support networks by providing means for parents to learn from and support each other in dealing with typical frustrating situations, such as temper tantrums. Meeting together helps the parents recognize that others are going through similar problems, and basically provides a means of sharing strategies for coping.

Screenings. Another major focus of the PAT program is a focus of early detection of potential problems by conducting periodic screening of language, hearing, and vision. Trained educators screen for potential problems by using such instruments as the Denver II screening instrument, the Ages and Stages Questionnaire: A parent Completed, Battelle Screening Inventory, Zimmerman Preschool Language Scale III, or the Early Language Milestones. Screening measures are used to provide early detection of potential problems that may play a factor in inhibiting learning and to prevent other various difficulties that may later emerge in a child's education and life. This process is utilized not only to detect potential problems but to gain a relative picture of a child's relative strength and weakness.

Information assessed from this process is used to share with parents regarding helpful information, guidance about their child's development and emerging skills, assist them in recognizing developmental or health concerns as early as possible, and to assist with appropriate interventions. Children with possible developmental delays and vision/hearing/health issues can be identified early and referred to further appropriate services as needed. The evaluation process

has been beneficial in detecting potential problems in young children. The PAT program has a long history of selective evaluations that have provided positive outcomes for families and children participating in the program (Parents as Teachers Research Overview: Key Outcomes for Families, n.d.).

Resource network. The fourth component consists of establishing a resource network between PAT parents and community agencies. As family needs arise, the trained educators serve as advocates to help the family access other community services that are beyond the scope of the PAT program (Albritton et al., 2003). Goals of the resource network are to: (1) link families with needed services, (2) collaborate with community resources, (3) form working relationships with organizations that have children's interest as mission, and (4) share expertise with community to become a recognized early childhood family support program in the community (p. 43).

The role of the PAT program is to incorporate these four core components into meeting and serving the needs of those involved. Parent educators are trained to build these skills into developing a family service agency that respond to parent needs, helps families in crisis, provides network connections with outside agencies, provide parents with helpful information about their child's development, and to identify developmental/health concern as early as possible.

Evaluations of PAT

The PAT program has expanded dramatically since its inception of the first pilot program in 1981. A select number of research projects have contributed significantly to the development of the PAT program. One particular study was conducted to determine if the delivery of PAT services during the first three years of children's lives would result in positive academic

outcomes upon children's entry into kindergarten at age 5 (Coleman, Rowland, & Hutchins, 1997). The participants in this study included three groups of parents and children used for comparison purposes. The first group, 21 families, received in-home support and training from parent educators for the first 36 months of their child's life. They were referred to as the "PAT families." The second group was referred to as the "Newsletter Families" and included 22 families. This group requested and received quarterly educational PAT newsletters for the first year of their child's life. The third group received no services, which involved 22 families. They were known as the "Control Families." The "PAT families" received monthly home visits to discuss their child's development, answer questions, and to demonstrate educational activities to the parents. During this three year period the educators conducted developmental assessments but the results of these assessments were not addressed. The following measures were administered at the beginning of the kindergarten year:

- The Early Screening Profiles-used to assess children's development in four areas
- The Language Profile-used to basic school readiness and children's understanding of verbal concepts
- The Cognitive Profile-used to assess children's understanding of logical relations and visual discrimination
- The Motor Profile-used to assess children's fine and gross motor skills
- The Self-Help/Social Profile-used to assess children's daily living, communication, social, and motor skills

Findings regarding the positive academic outcomes for those receiving PAT services upon entry to kindergarten confirmed modest expectations for the impact this program played in the a child's early development and education. Analysis of variance was used make comparisons

of the average age equivalencies and standardized scores between the three groups. Findings indicated that the “PAT Families” scored significantly higher than the “Newsletter or Control Families” on measures of language and self-help/social skills. Results found among the average Language age equivalencies indicated that “PAT Families” were more than 7 months higher (+7.48) than that of children from “Control Families” and more than 9 months higher (+9.25) than that of children from the “Newsletter Families” (Coleman et al., 1997). In addition, the average age equivalencies from “PAT Families” on the Self Help/Social Skills were more than 12 months higher (+12.62) than that of children from “Control Families” and more than 10 months higher (+10.44) than that of children from the “Newsletter Families” (1997). No significant differences were found between the three groups of measures of cognitive or motor skills, although the children of parents receiving PAT services scored higher than did the children from the comparison groups (Coleman et al.).

A pattern of positive effects was found in this study which confirmed that PAT services delivered during the first three years of life for those children participating in the program. These findings support the value of early educational programs, such as PAT, in advancing children’s early school performance upon entrance into kindergarten (Coleman et al., 1997).

Statement of Problem

Outcome studies from a number of research projects have been integral to the success of the PAT program in the past twenty-four years (Pfannenstiel & Seltzer, 1985). In addition, small studies have been conducted by the state of Missouri and other states, which have incorporated the program into their foundations, organizations, and school districts (Wagner & Clayton, 1999). Most of the evidence of the effects of the Parents as Teachers program is derived from these studies. Findings from these studies indicated that PAT children by age three are more

advanced than comparison children in language, problem solving, and other cognitive abilities (Pfannenstiel & Seltzer, 1985). PAT children also demonstrated significantly more positive social development than children in comparison groups by age three (Pfannenstiel & Seltzer). In addition, PAT children scored significantly higher on standardized measures of reading and math at the end of first grade than did comparison children (Pfannenstiel & Seltzer). Pfannenstiel & Seltzer (1985) stated that PAT children showed better school readiness at the start of kindergarten, higher reading, and math readiness at the end of kindergarten, higher kindergarten grades, and fewer remedial educational placements in first grade. However, only a small amount of research has specifically found that PAT children are reading-ready and have scored higher on school readiness test by kindergarten than comparison children (Parents as Teachers Research Overview: Key Outcome for Families, n.d.). One study by Coleman, Rowland, and Hutchins (1997) found that children enrolled in the PAT program were more advanced in early school performance upon entrance into kindergarten. Due to the limited number of studies that have been conducted on the impact the PAT program has had on kindergarten readiness, more outcome studies are necessary to whether there are positive effects on the kindergarten year.

Research Questions

The Parents as Teachers (PAT) program is an example of a widely implemented, universal-access home visiting program that emphasizes positive parenting behavior as a means to achieve developmental benefits for children. This program provides parent education to develop and strengthen the skills parents need to enhance the development for children during the early years of their life. It is anticipated that this two-generation approach, combining home visitation with center-based services can have positive impacts on children's literacy skills. The evaluation of this program's outcomes will be guided by the following research questions:

1. How do PAT students' basic early literacy skills upon entry into kindergarten compare to skills of students in a comparison group on the Dynamic Indicators of Basic Early Literacy Skills assessment system (DIBELS)?
2. How do end of kindergarten benchmark outcomes of PAT students compare to skills of students in a comparison group on the Dynamic Indicators of Basic Early Literacy Skills assessment system (DIBELS)?

METHOD

Participants

The sample for the study consisted of 30 kindergarten students who had participated in PAT and a comparison group of 176 kindergarten students who did not participate in PAT. The two groups, PAT children and control group, were enrolled in public kindergarten for 2005-2006 school year. The sample for this study was comprised of 209 kindergarten students from three elementary schools in southwestern New Mexico. Because the purpose of this study is to assess PAT participants and comparison participants outcomes, on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment system outcome data from both groups were collected by trained teachers and parent volunteers for evaluation purposes.

Recruitment of the participants into the program was the responsibility of local PAT program in the school district. All families involved in this study were either recruited by trained educators, referred by other PAT parents/teachers, or independently sought services. For the purpose of this study, a total of 30 families were enrolled in the program. PAT kindergarteners from three schools were assessed using the Dynamic Indicators of Basic Early Literacy Skills (DIBELS), specifically, 14 students from one elementary school, 12 students from a second elementary school, and 4 students from a third elementary school. Of the 30 participants included in this study all of the families received services from the PAT program which included regularly scheduled home visits, parent meetings, periodic developmental screenings, and connections to a community resource network. Demographic information about the non-PAT kindergarteners was not available.

Measures

Literacy school readiness will be assessed using one type of assessment, Dynamic Indicators of Basic Early Literacy Skills (DIBELS). The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) is a set of measures that assesses prereaders' skills in phonological awareness and alphabetical understanding. DIBELS was published by the Institute for the Development of Educational Achievement from the University of Oregon. Generally it was designed to monitor growth in the acquisition of critical early literacy skills to (a) identify children in need of intervention and (b) to evaluate the effectiveness of intervention strategies (Good, Gruba, & Kaminski, 2003).

The three subtests of the DIBELS include Letter Naming Fluency, Initial Sound Fluency, Phonemic Segmentation Fluency, and Nonsense Word Fluency. The evidence of reliability, validity, and sensitivity for DIBELS has been investigated in a series of studies. Studies have found that one type of alternate-form reliability of the DIBELS measures are generally adequate and range from .65 to .93 (Good et al., 2003). Each subtest that was used in this study is discreetly described below:

Initial Sound Fluency (ISF)

DIBELS ISF is a standardized, individually administered measure of phonological awareness that assesses a child's ability to recognize and produce the initial sound in an orally presented word (2003). The examiner asks the child to identify the word that begins with the target sound from an array of four pictures. For example, the examiner would ask the child the following question, "This is a sink, cat, gloves, and a hat. Which picture begins with /s/?" The child responds by pointing to the correct picture. In addition, the child is asked to verbally say the beginning sound of the word that matches one of the given pictures. The scoring for this

section is obtained by calculating the amount of time the child has taken to say the correct sound. The score is converted into the number of onsets in a minute. The ISF measure is assessed within a 3 minute period. There are 20 alternate forms and alternate-form reliability is .72 (Hintze, Ryan, & Stoner, 2003). Concurrent criterion-related validity of ISF is .48 in January of kindergarten and .36 with the Woodcock-Johnson Psycho-Educational Battery Readiness cluster score (DIBELS, n.d.).

Letter Naming Fluency (LNF)

DIBELS LNF is a standardized, individually administered test that provides a category of risk based on their performance and as determined by the set DIBELS benchmark goals. The examiner presents the child with a printed page containing rows of randomly ordered upper and lower case letters and is asked to name as many letters as he/she can in one minute. If the child is unable to recognize the letter the examiner will tell what the letter is. The score is calculated by the total numbers of letters correctly identified. Alternate forms reliability for LNF is .93 (Hintze et al., 2003). The median criterion-related validity with the Woodcock-Johnson Psycho-Educational Battery readiness score is .70 in kindergarten (Hintze et al.).

Phoneme Segmentation Fluency (PSF)

PSF is a standardized, individually administered measure that assesses a child's ability to segment three and four-syllable words into individual phonemes with fluency (Hintze et al., 2003.). The examiner says the words orally and the student is instructed to repeat the word orally in segmented syllables. For example, the examiner says, "cat," and the student says c/a/t. If the child says this correctly three possible points are given for the word. The number of correct phonemes per minute represents the child's score. This measure takes about 20 minutes to administer and has 20 alternate forms. There are 20 alternate forms available and alternate-form

reliability for PSF is .88 for kindergarten children (Hintze et al.). The concurrent criterion-related validity of PSF is .54 with the Woodcock-Johnson Psycho-Educational Battery Readiness Cluster score in spring of kindergarten (DIBELS).

Nonsense Word Fluency (NWF)

NWF is a standardized, individually administered test of alphabetic principle-including letter-sound correspondence and to assess level of awareness of the association between print and speech, as well as reading fluency. The student is presented an 8.5” x 11” sheet of paper with randomly ordered VC and CVC nonsense words (e.g. sig, rav, ov) and asked to produce verbally the individual letter sound of each letter or verbally produce, or read, the whole nonsense word (Good et al., 2003). For example, if the word is “vaj” the student could then say /v/a/j/ or say the complete word “vaj” to obtain a total of three letter-sounds correct. The examiner presents random lower and upper case letters to the students and the student is instructed to name as many letters as they can. If the student is unable to name a letter the letter will be told to them. The student is given one minute to complete this measure. The total score is calculated by counting all the correct letters. Since the measure is fluency based, students can receive a higher score if they phonologically recode the word. They can receive a lower score if they are providing letter sounds in isolation. The NWF measure also takes about 2 minutes to administer and has more than 20 alternate forms for monitoring progress (p. 683). The concurrent criterion-related validity of DIBELS NWF with the Woodcock-Johnson Psycho-Educational Battery-Revised readiness cluster score is .36 in January and .59 in February of first grade (Good et al.).

DIBELS Benchmark Goals and Indicators of Risk

According to the DIBELS manual, students are placed in categories of Low Risk, Some Risk, and At-Risk based on their performance and as determined by the set DIBELS benchmark goals. At the beginning of the year kindergarten students were assessed on ISF and LNF, and at the end of the year the kindergarteners were assessed on LNF, PSF, and NWF. The assessments are scored by imputing the raw scores into a specified database available through DIBELS website. The cutoffs for possible combinations of risk status are enumerated in Table 1.

Data Collection

For the purpose of this study, the DIBELS data system for the PAT and non-PAT kindergartners from three elementary schools have been collected by trained teachers and parent volunteers during the 2005-2006 academic school year. A schedule was set for each kindergarten classroom to come to a central location where trained individuals administered the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). Kindergartners' literacy skills performance was assessed two times: Fall 2005 and Spring 2006.

In addition, with the help of trained educators, information was retrieved about the family characteristics of those PAT kindergarten children; information for non-PAT kindergarteners were not available. Specifically, the following information was attained from the PAT program in this school district:

- Education level of parents: no high school diploma, high school, GED, associate's degree, bachelor's degree.
- Income Level: low, mid, and high. If the PAT's parent income fell below \$21,000 their yearly income fell within the low income range, if the PAT's parent fell between

Table 1

Descriptive Levels of Performance in Kindergarten

Variable	Performance	Descriptor
DIBELS Initial Sound Fluency	ISF \geq 8	Low Risk
	4 \leq ISF $<$ 8	Some Risk
	ISF $<$ 4	At Risk
DIBEL Letter Naming Fluency	LNF \geq 8	Low Risk
	2 \leq LNF $<$ 8	Some Risk
	LNF $<$ 2	At Risk
DIBELS Phoneme Segmentation Fluency	PSF \geq 35	Established
	10 \leq PSF $<$ 35	Emerging
	PSF $<$ 10	Deficit
Nonsense Word Fluency	NWF \geq 25	Low Risk
	15 \leq NWF $<$ 25	Some Risk
	NWF \geq 25	Low Risk

Note. ISF = Initial Sound Fluency; LNF = Letter Naming Fluency; PSF = Phoneme Segmentation Fluency; and NWF = Nonsense Word Fluency.

- \$21,000-\$38,000 it fell within the mid-income range, and if the PAT's parent income was above \$38,000 it fell in the high-income range.
- Birth weight of child: low birth weight and normal. If the PAT child's birthweight fell below 5 lbs. the weight fell with the low birth weight range and if the PAT's child birth weight was above 5 lbs, it was considered to be in the normal birth weight range.
- Ethnicity of students
- Duration of program enrollment
- Number of home visits
- Number of meetings attendance

Data Analysis

The DIBELS data set from the Fall 2005 and Spring 2006 scores from three elementary schools were analyzed quantitatively. The DIBELS LNF, ISF, PSF, and NWF measures will be coded. The purpose of coding the data will be used for identifying patterns of effects in benchmark outcomes of the PAT and comparison kindergarteners involved in this study. Several statistical analyses were conducted. As a preliminary step, descriptive statistics were calculated across all variables for both PAT and non-PAT participants. This descriptive information was used in describing students' performance and in ensuring that the data were normally distributed. A correlation matrix was ran to determine the degree to which the variables were related to one another. As a subsequent step, initial differences at the start of kindergarten between PAT and non-PAT students involving a multivariate analysis of variance (MANOVA) was also conducted. Specifically, the DIBELS outcome results between both groups on the two-pre-test variables, ISF and LNF, were compared. However, the primary

analysis for this study involved a multiple analysis of covariance (MANCOVA). Specifically, the DIBELS posttest results for both groups (PAT children and control group) were compared on LNF, NWF, and PSF DIBELS measures for Spring 2006 while controlling for students' initial scores on the LNF and ISF at the Fall 2005 screening. This MANCOVA was therefore accounted for initial differences in student exposure/experience, which may have influenced the degree to which kindergarten students improved across the school year. In addition, a post hoc univariate analyses was ran to determine which specific variables accounted for in the overall multivariate difference, specifically to determine if the multivariate results reached statistical significance.

RESULTS

Descriptive Statistics

The objective of this study was to investigate the Parents as Teachers program and its relationship to literacy and school readiness among kindergarten students enrolled in the three elementary schools in southwestern New Mexico. Students DIBELS scores from three elementary schools from Fall 2005 (pre-test) and Spring 2006 (post-test) were used in the analyses. As a first step, descriptive statistics (see Table 1) were calculated to determine initial and subsequent overall levels of students' abilities at pre- and post-test, at Fall: Initial Sound Fluency (ISF), Letter Naming Fluency (LNF), and at Spring: Letter Naming Fluency, Phoneme Segmentation Fluency (PSF), and Nonsense Word Fluency (NWF). These analyses provided useful information to help contextualize the results of the study.

First, the Fall 2005 range for ISF were relatively lower than the Fall LNF and any of the Spring measures (Fall ISF $SD = 5.5$, Fall LNF $SD = 9.0$, in comparison to Spring LNF $SD = 15.1$, Spring PSF $SD = 16.7$, and Spring NWF $SD = 14.3$). Students apparently entered kindergarten with very limited skills in sound fluency. A related second observation was that the mean scores for Fall ISF score fell in the some risk (M score=7.1) category; the Fall LNF mean scores also were in the some risk category (M score=7.0). However, the scores do improve over time: the Spring LNF mean score indicated low risk (M score = 39.6), the PSF mean status score is indicative of emerging literacy (M score = 31.2), and the NWF score indicates low risk (M score = 29.0). For the two groups combined, there is a systematic increase in performance over the year, as expected. Specifically notable is the change with the LNF scores; from Fall to the Spring the LNF measure increased from some risk to low risk for the entire kindergarten group (PAT and non-PAT combined). These patterns are summarized in Table 2.

Table 2

Descriptive Statistics

Time of Administration	<i>N</i>	Range.	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Fall						
ISF	208	0 - 28	7.1	5.5	1.5	2.9
LNF	208	0 - 52	7.0	9.0	1.8	3.5
Spring						
LNF	187	1 - 75	39.6	15.1	-0.4	-0.1
PSF	187	0 - 66	31.2	16.7	-0.1	-1.1
NWF	186	0 - 75	29.0	14.3	0.2	2.2

Note. ISF = Initial Sound Fluency; LNF = Letter Naming Fluency; PSF = Phoneme Segmentation Fluency; and NWF = Nonsense Word Fluency.

The DIBELS assessment measures for Fall ISF and LNF, and Spring LNF, PSF, and NWF were also analyzed using the pattern of risk factors from Table 1 in categorizing each student in the appropriate benchmark descriptors (ISF, LNF, NWF = low risk, some risk, and at risk and PSF = established, emerging, and deficit) of both PAT and non-PAT kindergarteners' outcome measures. At Fall academic screening using the DIBELS scores, both groups combined had a total of 66 students at low risk on ISF, 94 students at some risk on ISF, and 48 students at at risk on ISF. On the LNF at Fall, 67 showed low risk, 65 students showed some risk, and 75 students showed at risk. However, by Spring, both groups combined had 107 students at low risk on LNF, 42 students at some risk on LNF, and 36 students at at risk on LNF. For the NWF scores at Spring, 116 students showed low risk, 39 students showed some risk, and 32 students showed at risk. Also at Spring 89, students showed established status on PSF, 80 students

showed emerging status on PSF, and 17 students showed deficient status on PSF. These findings again indicate that over time fluency significant gains were made across both groups.

Benchmark goals specifically for the PAT kindergarteners were also calculated for Fall and Spring. At Fall, 19 students showed low risk scores on ISF, 10 students showed some risk on ISF, and 1 students showed high risk on ISF. On Fall LNF, 17 students showed low risk, 8 students showed some risk, and 5 students showed high risk. At Spring, 23 students showed low risk on LNF, 6 students showed some risk on LNF, and 1 students showed high risk on LNF. On Spring PSF, 26 students showed established status, 4 students showed emerging status, and 0 students were deficient. On Spring NWF, 24 students showed low risk, 4 students showed some risk and, 2 students showed high risk. A summary of these findings are found in Table 3. These findings indicate that from Fall to Spring PAT students were meeting benchmark scores by the end of the year. Students enrolled in PAT had a higher number of students scoring in the low risk status in Fall ISF and LNF and Spring PSF, LNF, and NWF than in the other categories of risk status than the non-PAT group.

Correlations

Table 4 contains the correlation coefficients between the all the DIBELS scores with the total group (PAT and non-PAT students combined). Examination of the coefficients was conducted to (a) ascertain if the DIBELS scores appeared to have convergent validity, and (b) confirm the trends of pre- to post-test association, indicating if student improvement is associated with initial student exposure.

Correlations between LNF and ISF were first examined at pre-test (Fall). The resulting value of $r = .41$ indicated a moderately strong correlation but not as strong as might be expected considering that both these scores purportedly evaluate similar constructs. The cross-sectional

Table 3

Fall and Spring Benchmark Goals

Period DIBELS Assessed	Participants	<i>Low Risk</i>	<i>Some Risk</i>	<i>At Risk</i>
Fall ISF	Groups Combined	66	94	48
	PAT	19	10	01
Fall LNF	Groups Combined	67	65	75
	PAT	17	08	05
Spring LNF	Groups Combined	107	42	36
	PAT	23	06	01
Spring NWF	Groups Combined	89	80	17
	PAT	24	04	02
Spring PSF	Groups Combined	89	80	17
	PAT	26	04	0

Note. Spring PSF: Low Risk = Established, Some Risk = Emerging, and High Risk = Deficient
 ISF = Initial Sound Fluency; LNF = Letter Naming Fluency; PSF = Phoneme Segmentation Fluency; and
 NWF = Nonsense Word Fluency.

Table 4

Correlations Between and Among Fall (N=208) and Spring (N=187) DIBELS Scores

		Fall IS	Fall LNF	Spr LNF	Spr PSF	Spr NWF
Fall ISF	Pearson Correlation	1.00	.41**	.29**	.37**	.24**
	Sig (2 -tailed)		.00	.00	.00	.00
Fall LNF	Pearson Correlation	.41**	1.00	.48**	.43**	.38**
	Sig (2 -tailed)	.00		.00	.00	.00
Spring LNF	Pearson Correlation	.29**	.48**	1.00	.64**	.73**
	Sig (2 -tailed)	.00	.00		.00	.00
Spring PSF	Pearson Correlation	.37**	.43**	.64**	1.00	.61**
	Sig (2 -tailed)	.00	.00	.00		.00
Spring NWF	Pearson Correlation	.24**	.38**	.73**	.61**	1.00
	Sig (2 -tailed)	.00	.00	.00	.00	

Note. ** Correlation is significant at the 0.01 level (2-tailed).

ISF = Initial Sound Fluency; LNF = Letter Naming Fluency; PSF = Phoneme Segmentation Fluency; and NWF = Nonsense Word Fluency.

correlations at post-test (Spring) were notably higher ($r = .64$, $r = .73$, and $r = .61$). This finding indicates that by the end of the year, student performance was much more consistent across three tests, as would be expected. Finally, calculations were conducted on correlations between initial and subsequent scores. As would be expected, these values were typically in the small to moderate range, with the highest scores being between Fall and Spring LNF scores, which would be expected. However, the correlation between Fall ISF and Spring scores were lower than the correlation with the Fall LNF scores, indicating that LNF measure might be more important in assessing a child's phonological awareness and alphabetical understanding upon entrance into kindergarten.

MANOVA

As a subsequent step, initial differences at the start of kindergarten needed to be evaluated between PAT and non-PAT students. Therefore, a multivariate analysis of variance (MANOVA) between both groups on the two pre-test variables, ISF and LNF, were conducted. Taken together, the results of the MANOVA revealed statistically significant differences between PAT and non-PAT groups ($F=14.8$, Wilk's Lambda=.88 , $p < .0001$). Examination of mean scores indicated that PAT children out-performed non-PAT kindergarteners at the beginning of the school year on both the ISF and LNF, as would be expected given the prior interventions they had received.

MANCOVA

A multivariate analysis of covariance on three posttest measures (LNF, PSF, and NWF) across PAT and non-PAT groups was conducting with pretest measures (ISF and LNF) as covariates. Statistical significant differences were observed ($F=3.91$, Wilk's Lambda=.94 , $p = .01$). However, the post-hoc analysis indicated that only difference that remained statistically

significant at the univariate level was on the PSF. The differences on the other two scores did not reach statistical significance when the pre-test scores were entered into the model. As can be observed in Table 3, although the PAT kindergarteners out-performed the non-PAT children on all three scales (PSF, NWF, and LNF), the magnitude of the differences observed were quite small on the LNF and NWF. Thus, no significant differences were found between the groups on Spring NWF and LNF after accounting for the initial exposure. However, the results of this study indicate the PAT kindergarteners did exceed the non-PAT group at posttest on the PSF. A summary of these findings is seen on Table 5.

Table 5

Univariate Analysis

Dependent Variable	Participants	<i>M</i>	<i>F</i>	<i>p</i>
Spring PSF	Non-PAT	28.83	10.48	.00
	PAT	44.37		
Spring NWF	Non-PAT	28.06	.54	.46
	PAT	34.03		
Spring LNF	Non-PAT	38.22	1.88	.17
	PAT	39.62		

Note. LNF = Letter Naming Fluency; PSF = Phoneme Segmentation Fluency; and NWF = Nonsense Word Fluency.

DISCUSSION

The purpose of this study was to assess the Parents as Teachers program and its relationship to literacy and school readiness among kindergarten students enrolled in three elementary schools in southwestern New Mexico using the Dynamic Indicators of Literacy Skills (DIBELS) assessment system. The two groups consist of PAT and non-PAT kindergarteners. The two groups were compared on pre- and post-test DIBELS measures (Fall-LNF and ISF, and Spring-LNF, NWF, and PSF). The findings of this study suggest that the PAT kindergarteners had achieved obtained outcome success on both their Fall and Spring DIBELS measures and that the program had positive effects on these student's literacy development. In this chapter a more in depth discussion will be explored about the findings, research questions, and limitations involved in this study.

Summary of Findings

Several analyses were conducted for the purpose of this study. First, the descriptive statistics showed that a relatively small range was found at Fall for both LNF and ISF whereas at Spring the range was increased on all three measures (LNF, NWF, and PSF) for both groups combined (PAT and non-PAT combined). In addition, in examining the comparison between mean scores from both groups combined, the students made dramatic improvement in their mean scores from Fall to Spring. In addition, the findings revealed that at Fall the majority of students (PAT and non-PAT group combined) were placed in the some risk category on ISF and in the high risk category on LNF; and at Spring the group as a whole made drastic improvements in LNF, NWF, and PSF. Based off of these findings a potential interpretation of the improvements in range performance, mean scores, and improvements in benchmark descriptors represent overall improvements in route to expected literacy benchmark goals.

Second, the DIBELS measures taken at Fall appeared to have a moderately strong correlation (LNF and ISF). When a cross-sectional correlation was conducted on all three measures at Spring (LNF, NWF, and PSF) and compared to Fall measures (ISF and LNF) the scores at Fall were notably higher. Furthermore, when comparing initial and subsequent scores the finding revealed values that were in the small to moderate range with the highest scores being between Fall and Spring LNF scores.

Third, initial differences needed to be established between PAT and non-PAT kindergarteners so a MANOVA was conducted. Findings from this analysis revealed that statistical significant differences were observed between both groups with PAT kindergarteners outperforming non-PAT kindergarteners.

Finally, a MANCOVA was conducted on all three posttest measures (LNF, PSF, and NWF) across PAT and non-PAT groups with ISF and LNF used as covariate variables. In this analysis significant differences were observed only with PSF, the difference on the other two scores (LNF and NWF) did not reach statistical significance when the pre-test scores were entered.

Based on the overall findings of these analyses, the outcome for the kindergarteners in the PAT program were better in both Fall and Spring in comparison to the non-PAT group. In this study the presence of these significant findings maybe a function of the program implementing the components of the Born to Learn Model (personal visits, group meetings, screenings, and resource network) in the home and PAT kindergarteners exposure to the program curriculum. Positive outcome literacy based outcome measures were attained and appeared to be significant when a multivariate analysis was conducted on Fall initial differences of ISF and LNF between PAT and non-PAT kindergarteners. The impact of enrollment in the PAT program for

these 30 kindergarten students was consistently positive in DIBELS outcome measures during both Fall and Spring, in which the PAT kindergartners appeared to out-perform the non-PAT kindergartners. The PAT kindergartners were found to be on route to reaching expected literacy benchmark goals upon entrance to school.

To achieve these goals, the PAT program in this school district in southwestern New Mexico emphasized the importance of literacy skill development in the home and during group meetings. Trained parent educators taught the parents these prerequisite literacy skills by routinely using developmentally appropriate books when a home visit was made. The educators showed the parent the kinds of books the child would enjoy and modeled how to use them with the child. The PAT program in this district provided meaningful efforts to promote literacy at such a young age that after each home visit they gave the parent and child a brand new book to enforce literacy development in the home. In addition, during these home visits the parents were taught again by trained educators to appreciate the value of active language and to engage in daily conversation with their children. The results of this analysis emphasized the importance of parents reading regularly during the early years of a child's life, the importance of having a variety of printed materials or books in the home, and the importance of parent's involvement in stimulating the child's basic interest in reading at such a young age. It appears the PAT program in this school district provided an ideal vehicle in promoting early literacy experiences into the home for these PAT kindergartners.

In addition, the significant differences on PSF outcome measure the PAT kindergartners achieved may have been contributed by regular reading activities these children might have been involved while in the program. It appears that from this initial exposure PAT children were better able to name the letters based on the thoroughness or involvement with which the letter names

were practiced and that analytical awareness may have been learned from the sounds that make up words when one is read to on a regular basis. In relation to phonological awareness, Johnson (1996) proposed that “learning to read and phonemic awareness develop in tandem, in a reciprocal mutually supporting relationship” (p. 35). Overall, the outcome results of the study could be supported by parents’ participation in literacy skill development while enrolled in the program and the integration of the PAT’s Born to Learn model by the PAT program the Kirtland New Mexico Consolidated School District #22.

Reflections on Research Questions

Guided by the two research questions addressed in this study, the overall results indicate the PAT group, upon entry to kindergarten, had more students in the low risk range on ISF and LNF. Overall, the results indicated that, as expected, PAT kindergarteners placed equally or exceeded in the categories of low risk on their ISF and LNF performance at Fall than non-PAT students as determined by the set DIBELS assessment system. It was also found from the Spring outcome measures the majority of PAT kindergarteners reached the established category for PSF and the low risk categories for LNF and NWF. In comparison to the group as a whole, the majority of kindergartners placed in the category of low risk with NWF and LNF, and for PSF the majority also reached established benchmark status.

In conclusion, the DIBELS assessment system revealed that those students enrolled in the PAT program had positive outcome measures on the Fall and Spring DIBELS outcome measures in comparison to a group as whole. It is noteworthy to acknowledge that at post-outcome measures PAT students and non-PAT students both reached benchmark goals. Based off of the overall outcome measures of the PAT students these findings do support the value of the Parents as Teachers program in advancing children’s early school performance.

PAT has a long history of independent evaluations demonstrating positive outcomes for young children and their families (Stepleton, 2006). Stepleton stated that Parents as Teachers children are better prepared for kindergarten—scoring higher on kindergarten readiness tests and teacher ratings. In a study conducted by Bryant, Espinosa, & Guskins (2003) data was collected on 2,375 kindergarten children beginning public school in the state of Missouri in the Fall of 1998. This study involved comparing kindergarten students participating in the PAT to a group of kindergartners not participating in the program. This study found that the PAT program has small positive effects on children's DIBELS scores, and that for many of the measures the direction of effects generally favored the PAT group (Bryant et al.). This study by Bryant and his colleagues supports the outcome of this particular study. The PAT program in this school district may have had small positive effects on the literacy measures of the PAT kindergartners for both Fall and Spring but the results are sufficient to encourage continued efforts to make such parenting education and support programs available to other families in this area.

Limitations

This study had a number of limitations in evaluating the relationship of Parents as Teachers program interventions to literacy development among kindergartners in this school district. These factors need to be considered because they may have contributed to the outcome results found.

Age Considerations

The outcome of DIBELS measures is affected by age considerations, reader maturity level, and innate cognitive ability. No information was collected on age or cognitive level of kindergartners involved in this study. It is important to consider that little information is known about skill level upon entrance to kindergartners to differentiate good readers from poor readers.

Prior Educational Exposure

The outcome measures for all students involved in this study needs to take into consideration the level of initial educational exposure each student have had up to the point of beginning kindergarten. Enrollment in any type of preschool curriculum or early intervention program exposure was not collected. No information was gathered on the amount of pre-reading skills that were taught before entrance into kindergarten (i.e. reading time spent with child, teaching of alphabetical letters and sounds, etc.).

Parental Involvement

The level of parental influence of the PAT kindergarteners is not known (i.e. types of involvement activities played in the home, parenting styles, amount of time spent reading or teaching basic letters, telling their child stories, and taking their child outings to library and local museums). Parental involvement is a complex issue with multiple dimensions that exist on a continuum from program-centered activities to home centered activities. It includes not only parenting behaviors (i.e. meeting attendance, activity involvement, and involvement in home visits) but also encompasses attitude about involvement.

Inconsistency in Program Quality and Intensity

For this study the PAT program in this school district were in control over program activities or the delivery services. The years of participation of each student enrolled in the program varied from 1-4 years. Each PAT kindergartener varied in years for enrollment. In reference to program intensity, the amount of home visits varied for each student (0-30 visits), along with meeting attendance (0-38 meeting attendance). The inability of the PAT program to deliver theses services jeopardized the programs ability to benefit children and families enrolled in this program at the expected level.

Diverse Populations

In these three school districts in southwestern New Mexico there is a diverse ethnic population. The diverse population of kindergarteners involved in this study raises concerns about the cultural sensitivity of some of the outcome measures. In this study there was a total of 209 participants in which there was 36 Caucasian kindergarteners, 17 Hispanics, 132 American Indian, and 24 Not Declared.

Conclusion

Generally, early childhood intervention programs are based on the premise that those children enrolled in family support programs are better prepared for success when they enter kindergarten. Since the inception of the Head Start program in the 1960s, tentative steps have been made to implement effective early intervention programs into the educational and family systems. The role that an early childhood program plays in the life of a young child, particularly those at risk or with a disability, is an important one (Jones, 1995)

Bryant et al. (2003) stated that “the large scale Early Head Start evaluation found that well-implemented home visiting programs produce cognitive and language effects” (p. 3). There is evidence from this study that PAT programs are producing these effects. The program’s vision and core values have and are currently responding to the need of focusing on children’s early years and setting them on a positive developmental trajectory, particularly in this area. The results from this study support continual efforts for implementation of the PAT program in this area because it appears that PAT children are entering school with sufficient literacy readiness skills.

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