CHILDREN OF TEENAGE MOTHERS: SCHOOL READINESS OUTCOMES AND

PREDICTORS OF SCHOOL SUCCESS

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The purpose of this study was to examine the effects of teenage motherhood on the school readiness, literacy skills, and parental involvement of children participating in the Home Instruction for Parents of Preschool Youngsters (HIPPY) early intervention program, as well as make recommendations for optimal outcomes. Study children were participants in HIPPY at five diverse, urban school districts. Using a mixed method design, this study examined the results of quantitative measures of children's school readiness, literacy skills, and parent involvement along with qualitative data collected through mothers' responses to two, open-ended questions related to their satisfaction with HIPPY. According to results of independent samples t-test, mean scores on school readiness and parent involvement measures were not statistically significantly different for the children of teenage mothers and the children of traditional age mothers. However, there were moderate effect sizes for parent involvement and physical development indicating some practical significance. Chi-square results of literacy skills indicated that the children of teenage mothers were almost twice as likely [χ^2 (1, $N = 36$) = 4.21, $p < .05$] to have literacy skills that were "not on grade level" according to scores on the TPRI/Tejas. Descriptive discriminant analysis (DDA) indicated that the multivariate relationship of the four parent involvement variables statistically significantly contributed to whether children born to teenage mothers had literacy skills on grade-level, but it was not significant for the children of traditional-age mothers. DDA analysis conducted on the school readiness variables did not yield any significant results. In

addition, odds ratios conducted between literacy level and each of the parent involvement and school readiness variables indicated an increased probability of a child's literacy skills being on grade level when scores were high, but these increases were not statistically significant. While there were differences in literacy skills, teen mothers indicated, through their responses to two, open-ended questions, their desire to for more support for their children in this area.

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CHAPTER 1

INTRODUCTION

Spurred by a growing body of research that links early school success with greater academic achievement and success later in life, President George H. W. Bush met in 1990 with the governors of all 50 states in the first educational conference held since nearly the beginning of the century. Out of this meeting came a renewed national commitment to education in America and the development of the National Education Goals 2000 which began with this statement: "All children will start school ready to learn" (National Education Goals Panel: NEGP, 1991, p. 2). Although the wording has changed in subsequent years, the message has remained the same – the school readiness of young children is still a major national issue.

Increasingly the American public has begun to recognize the importance of the first few years in the life of a child for promoting healthy physical, emotional, social, and intellectual development. Yet due to disparities in their life experiences, many young children face deficiencies in the years leading up to school entry in terms of emotional support, intellectual stimulation, or access to resources which can impede their ability to enter school ready to learn. These deficiencies are predictive of subsequent academic performance (Shonkoff & Phillips, 2000).

There is no single definition of school readiness. Most commonly, school readiness is regarded in terms of children's competencies (e.g. cognitive, linguistic, academic, social-emotional) upon school entry. The problem is that this definition does not consider the child's individual characteristics such as learning styles and environment (Mashburn & Pianta, 2006). Another definition looks at school readiness as a set of interactions and transactions between people (children, teachers, parents, and other caregivers), settings (home, school, childcare) and institutions (communities, neighborhoods, and governments) (Duncan et al., 2007; National Association for the Education of Young Children: NAEYC, 2004). Ultimately, experts agree that readiness

is a multifaceted concept that goes beyond academic and cognitive skills to include the child's physical, social, and emotional development as well as approaches to learning and general knowledge; and the school and communities ability to support and respond to the unique needs and abilities of the child (Kagan, Moore, & Bredekamp, 1995; NAEYC, 2004; NEGP, 1997).

Research shows several aspects of the home environment, such as maternal education, home literacy activities, and parent involvement contribute, positively to children's readiness (Burchinal, Peisner-Feinburg, Pianta, & Howes, 2000; Hanson, Morrow, Bandstra, McAuley, Pecora, & Rose, 2006; Haskins & Rouse, 2005; Magnuson & Waldfogel, 2005; Ramey, Campbell, Burchinal, Skinner, Gardner, & Ramey, 2000; Rhode Island KIDS COUNT, 2005). However, children from low-income, single-parent, and minority families are more likely to start school with limited language skills, health problems, and social and emotional problems that interfere with learning (Espinosa, 2007; Maxwell & Clifford, 2004; Rhode Island KIDS COUNT, 2005; Welsley & Buysse, 2003).

Although the school readiness of all children in America is vitally important, perhaps one of the most vulnerable populations is the children born to adolescent mothers. The problems facing teenage mothers are well documented. Teenage mothers are more likely than other young women to drop out of school, remain unmarried and become single parents, live in poverty, and rely on public assistance (Lopez-Turley, 2003; Maynard, 1997; Moore, Morrison, & Greene, 1997). Many of these factors reflect disadvantages that existed before these teenagers became mothers; however, they are compounded by teenage parenthood.

The effects of teenage parenthood are evident in the lives of the young mothers; however, the costs of teenage motherhood seem to be primarily borne by their children. Research conducted over the past 30 years has shown that children born to teenage mothers are at risk for low school readiness (Levine & Pollack, 2003; Luster, Bates,

Fitzgerald, Vandenbelt, & Peck-Key, 2000; Terry-Humen, Manlove, & Moore, 2005). Whether due to social and economic circumstances or maternal characteristics is of some debate, but whatever the cause the fact remains that children born to teenage mothers are at-risk of not entering school to learn (Luster, Bates, Fitzgerald, Vandenbelt, & Peck-Key, 2000). This fact is worrisome because school readiness is predictive of academic outcomes in elementary school, as well as later educational achievement (Magnuson & Waldfogel, 2005).

This dissertation is centered on an early intervention program whose purpose is to increase the school readiness and later academic achievement of at-risk children. While there are many types of intervention programs for at-risk children, those designed to improve children's school adjustment and to prevent later academic problems are most effective when they occur at school entry or during the preschool years (Hanson et al., 2006). Strategies that emphasize parent-child interactions can promote children's readiness to start school. One delivery method for early intervention programs is through home visits. Home visiting programs during the preschool years are generally based on the premise that parents are the first teachers of their children. Home visiting programs also aim to improve a family's access to resources, meet basic needs, and strengthen family wellbeing. By working intensively with families, these programs can help to prepare children for successful engagement with the school environment. The Home Instruction for Parents of Preschool Youngsters program, better known as Home Instruction for Parents of Preschool Youngsters (HIPPY), is one such early intervention program.

HIPPY is a free, 3-year, home-based early intervention program for 3-, 4-, and 5-year-old children from poor and immigrant families (HIPPYUSA, n.d.a.). Each year of the HIPPY program is 30 weeks in length and utilizes explicit, direct, instructional lessons designed to enhance children's language development, problem-solving skills, and sensory and perceptual discrimination of children. Paraprofessionals from similar

communities as the families they serve deliver the HIPPY program in weekly home visits using role-playing to teach parents how to engage their children in the curriculum learning activities (HIPPYUSA, n.d.b.). HIPPY's mission is to "empower parents as primary educators of their children in the home and foster parent involvement in school and community life to maximize the chances of successful early school experiences" (HIPPYUSA, n.d.a.).

Research unequivocally shows that students at every level make greater gains and experience fewer problems when their parents are aware of, knowledgeable of, and encouraging about their children's school experiences (Barton, 2003; Henderson & Mapp, 2002; Vaden-Kiernan & McManus, 2005). Additionally, early school success is linked to greater academic achievement and success later in life (Barnett, 2002; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002). Based on this evidence, HIPPY focuses on increasing the parent involvement in their child's education as well as improving children's school readiness. Through home visits and monthly group meetings, parents receive the tools they need to sustain active, continuous parent involvement with their child's schools and learning process (Westheimer, 2003).

While HIPPY has made significant advances in the school readiness and parent involvement of at-risk children, researchers have yet to examine HIPPY's effect on the school readiness of one of the most at-risk populations, children of teenage mothers. This study will examine the effects of being the child of a teenage mother on the school readiness and parent involvement of children participating in the HIPPY early intervention program and make recommendations for optimal outcomes.

Background of the Study

Girls who become teenage mothers are typically more disadvantaged than other teenagers, both before and after becoming parents. While teenage pregnancy crosscuts all income levels, 85% of teenagers who give birth are poor or near-poor (Cushman & McNamara, 2004). In addition to poverty, other indicators which consistently predict

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teenage childbearing are family dysfunction, early behavior problems and poor performance in school (Cushman & McNamara). Teenage mothers are also less likely to complete high school, more likely to be single parents and receive welfare (National Campaign to Prevent Teen Pregnancy, 2004).

While the effects of early childbearing are evident in the lives of teenage mothers (National Campaign to Prevent Teen Pregnancy, 2004), a study of the consequences of teenage childbearing suggests that the long-term effects of teenage motherhood are primarily borne by their children (Maynard, 1997). Children of teenage mothers are more likely to be born prematurely or at a low birth weight (Hamilton, Martin, & Ventura, 2006), have less stimulating home environments, perform poorer on standardized tests of cognitive skills, and display more behavior problems than children born to traditional-age mothers (Hofferth & Reid, 2002; Levine & Pollack, 2003; Lopez-Turley, 2003; Luster et al., 2000; National Campaign to Prevent Teen Pregnancy, 2004). Overall, the children of low-income young mothers are, more often than not, unprepared for formal schooling. In research using data from the Early Childhood Longitudinal Study (ECLS), children born to teenage mothers began kindergarten with lower levels of school readiness—including lower math and reading scores, language and communication skills, social skills, and physical and emotional wellbeing—than those born to traditional-age mothers (Terry-Humen et al., 2005).

Although there appears to be a direct relationship between academic achievement and maternal age, far more of the impact of young motherhood on the child is mediated by multiple factors such as low socio-economic status, low levels of maternal education, and lack of father involvement (Spieker, Larson, Lewis, Keller, & Gilchrist, 1999). The HIPPY program aims to help low-income parents with limited formal education.

The HIPPY Program

HIPPY is a 3-year, home-based, early education intervention program that aims to help parents with limited formal education prepare their 3-, 4- and 5-year-old children for school. Developed in Israel and brought to the United States in 1984, HIPPY now operates at more than 147 sites in 25 states, the District of Columbia, and 9 countries (HIPPYUSA, n.d.c.). The HIPPY program targets low-income, primarily minority, parents in hopes of breaking the cycle of educational limitations by increasing the chances of successful early school readiness among their children. The program provides educational enrichment to at-risk preschool children (HIPPYUSA, n.d.a.). To be eligible for the HIPPY program, a child must be economically disadvantaged, academically at-risk, or homeless (C. Weir, personal communication, July 19, 2007).

A professional coordinator whose primary responsibilities are recruiting parents, hiring and training home visitors, organizing parent group meetings, and developing enrichment activities supervises each HIPPY site (HIPPYUSA, n.d.e). The coordinator and home visitors meet weekly to role-play the curriculum material, discuss the previous week's activities, and share experiences and problems. Sometimes problems arise that the coordinator may handle by making a home visit or by referring a parent to an appropriate social service agency (HIPPYUSA, n.d.e.).

The HIPPY program is delivered by home visitors who are members of the community in which they serve and are also parents in the program. Many of the home visitors have limited English proficiency and only a high school education or General Educational Development (GED: C. Weir, personal communication, July 19, 2007). Many HIPPY home visitors are AmeriCorps members. AmeriCorps is a federally funded network of local, state, and national service programs that connects more than 70,000 Americans each year with volunteer service organizations in the areas of education, public safety, health, and the environment (Corporation for National and Community Service, n.d.). As AmeriCorps members, home visitors receive training and an

education award for successfully serving 900 hours as HIPPY home visitors (HIPPY Texas, n.d.).

HIPPY home visitors work with participating parents in the parents' homes weekly to instruct them in using the HIPPY educational materials. Each week, the coordinator practices the lesson for the week with the home visitors. The home visitors then role-play the lessons with the parents, and the parents in turn repeat the activities with their children during the week (HIPPYUSA, n.d.d.). Prior to presenting a new lesson, the home visitors follow up with each parent by reviewing the child's workbook and discussing the child's progress. Home visitors are crucial to the HIPPY model. Their knowledge of the community allows them to develop trusting relationships with the participating families, and since most home visitors are former HIPPY parents themselves, they identify with the kinds of challenges the parents face (HIPPYUSA, n.d.e.).

The home visitors teach the parents primarily through role-playing (HIPPYUSA, n.d.g.). Role-play provides opportunities to discuss the goals of the activities, reflect on the learners' specific needs (both adults and children), and teach new skills. Role-playing also promotes a comfortable, non-threatening learning environment that promotes parental empathy for the developmental capabilities of young children (HIPPY USA, n.d.g.). Finally, the role-playing method of instruction allows parents with limited reading ability an opportunity to become effective first teachers for their children.

The HIPPY curriculum is designed for 3-, 4-, and 5- year old children and is available in both English and Spanish (HIPPYUSA, n.d.b.). Each year's materials include 30 weekly activity packets, 9 storybooks, and a set of 20 manipulative shapes. In addition to these basic materials, supplies such as scissors and crayons are provided for each participating family. The HIPPY curriculum is primarily cognitive-based, focusing on language development, problem solving, logical thinking, and perceptual skills. The HIPPY curriculum exposes children to early literacy skills including

phonological and phonemic awareness, letter recognition, book knowledge, and early writing experiences. In addition, the curriculum fosters social-emotional development as well as fine and gross motor development. All activities are completed at home using the provided materials or common household items such as spoons. Each activity pack is highly structured with step-by-step instructions, providing parents with little formal education the confidence to be their child's first teacher.

Parents also receive information and support in their role as their child's first teacher during group meetings and field trips (HIPPYUSA, n.d.f.). Parents are strongly encouraged to attend monthly group meetings where they share their experiences and engage in enrichment activities involving issues related to parenting, employment, school/community/social services, and personal growth. Parents chose the group meeting topics that help them learn how to be more effective parents and members of the community. Childcare is provided during the group meetings, and the children learn to interact socially.

Field trips provide parents and children experience learning opportunities in the larger community. Field trips include visits to museums, zoos, and theater productions (C. Weir, personal communication, July 19, 2007). One or both parents must attend field trips with their child so parents can be an active participant in the educational experience. In fact, entire families can participate in the child's learning experiences through field trips. Many HIPPY programs report that fathers, who are otherwise not involved with the HIPPY program, often attend field trips with their children (C. Weir, personal communication, July 19, 2007).

<center>Statement of the Problem</center>

Children's skills and abilities related to school readiness are strongly influenced by their families, interactions with other people, and surrounding environments before entering school (Maxwell & Clifford, 2004). Thus, children in vulnerable home situations are at greater risk of entering school at a disadvantage. The problems that teenage

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mothers face are well documented. Teenage mothers are more likely than other young women to drop out of school, remain unmarried and become single parents, and to live in poverty and rely on public assistance (Moore et al., 1997; National Campaign to Prevent Teen Pregnancy, 2004; O'Callaghan, Willard, & Whitman, 2001; Terry-Humen et al., 2005), all of which place their child at great disadvantage. While many of these factors reflect disadvantages that existed before these teenagers became mothers (Levine & Pollack, 2003), teenage childbearing seems to compound these disadvantages for their children. As a result, children born to teenage mothers are at-risk of not entering school to learn. This is worrisome because school readiness is predictive of academic outcomes in elementary school, as well as later educational achievement (Magnuson & Waldfogel, 2005). At-risk families who participate in early intervention programs that stress parent involvement, such as HIPPY, increase their children's school readiness and later school achievement (Reynolds, 2000; Reynolds, Temple, Robertson, & Mann, 2001). However, questions remain specifically regarding the children of teenage parents. Despite the fact that the HIPPY program addresses many of the risk factors often experienced by children of teenage mothers (including a lack of an enriching home environment, inadequate interactions with adults, and developmental delays) the question remains: How effective is the HIPPY program for the children of teenage mothers? The purpose of this study is to examine the effects of teenage motherhood on the school readiness, literacy skills, and parental involvement of children participating in the HIPPY early intervention program as well as make recommendations for optimal outcomes. Specifically, this study attempts to answer the following research questions:

1. To what extent are there statistically significant differences in the parent involvement of teenage mothers versus traditional-age mothers participating in the HIPPY program?

2. To what extent are there statistically significant differences in school readiness of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program?

3. To what extent are there statistically significant differences in the literacy skills of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program?

4. How do parent involvement and school readiness scores differ based on the literacy level of kindergarten children born to teenage mothers participating in the HIPPY program?

5. How do parent involvement and school readiness scores differ based on the literacy level of kindergarten children born to traditional-age mothers participating in the HIPPY program?

6. What specific components of the HIPPY program do teenage mothers and traditional-age mothers in HIPPY suggest are the most beneficial to them and their children?

7. What additional information or training do teenage and traditional-age mothers feel HIPPY could provide to better support them as their children's first teacher and thus better ensure their children enter school ready to learn?

Significance of the Study

Numerous studies have demonstrated that the children of teenage mothers are less likely to enter school ready to learn and that these children experience more behavior problems than children born to traditional-age mothers (Lopez-Turley, 2003; Maynard, 1997; Moore et al., 1997; Spieker et al., 1999; Terry-Humen et al., 2005). While the benefits of early intervention programs such as HIPPY are shown to improve the academic outcomes of at-risk children, no known studies have examined HIPPY's impact on the children of teenage mothers. The results of this study will guide the HIPPY program's development regarding the children of teenage mothers. Adapting the

HIPPY curriculum to meet the needs of these children may increase their readiness to learn when they enter kindergarten, which in turn may increase their future academic success. This study will also have implications on policy involving intervention programs aimed at the children of teenage mothers.

Overview of Methodology

HIPPY families from five, large urban HIPPY programs in Texas served as the population for this study. First-born children of mothers who were 19 years old or younger at the time of their child's birth were assigned to the teenage mother group while first-born children whose mothers were older than 19 years at the time of their child's birth were assigned to the traditional-age mother group. Children in the two study groups were matched in home language, ethnicity, mother's education, income-level, home visitor, and elementary school attendance to control for any effects related to these variables. This study used a mixed-method design. Quantitative measures were used to assess the children's readiness for school, literacy skills, and parent's involvement in the children's school. Qualitative data regarding the mothers' satisfaction with the HIPPY program were examined to discover patterns and identify themes regarding HIPPY program benefits for teenage mothers.

Delimitations of the Study

This study was limited to kindergarten children enrolled in the Texas HIPPY program during the 2007-2008 school year. Children who qualified for special education services such as speech therapy and English as a Second Language (ESL) were included. Children who qualified as homeless under the McKinney-Vento Act were also included in the study (The National Center for Homeless Education, n.d.). However, neither of these groups of children were compared as a subgroup.

Limitations of the Study

All the families in the study participated in the HIPPY program and received the same curriculum designed and copyrighted by HIPPYUSA. While the lessons were

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presented to families in the manner prescribed by HIPPYUSA, the study did not control for the following factors.

1. Differences in the communities of the HIPPY sites.

2. Individual differences of the home visitors' teaching styles, competence, and relationship with the families they serve.

3. Differences in home environments.

4. Differences in family structure.

5. Differences in the parents' competency levels.

6. Differences in the importance parents place on education.

7. Children's individual preschool experiences.

8. Individual kindergarten teachers' teaching styles.

<div align="center">Definitions of Key Terms</div>

Achievement gap – Achievement gap is defined as the difference between how well low-income and minority children perform on standardized tests as compared with their peers.

At-risk – At-risk children are those who because of various life circumstances stand a chance of not having a successful academic outcome. Factors that place a child at-risk include low birth weight or born prematurely, low family income, single-parent family, teenage parent, minority status, limited English proficiency, or being homeless (Michigan Department of Education, n.d.).

Early intervention programs – Early intervention programs are programs that promote the child's growth and development and support families during the critical early years of the child's life.

Emergent literacy – Emergent literacy refers to the skills, knowledge, and attitudes that are presumed to be developmental precursors to conventional forms of reading and writing (Clay, 1972).

English language learner (ELL) – A student whose primary language is any language other than English and who has little or no knowledge of the English language is defined as an English language learner.

Home-based instruction – Parents are trained to use the HIPPY curriculum through weekly visits with paraprofessionals who are past parents in the program (HIPPYUSA, n.d.d.).

Home visit – A home-visit is a visit by the HIPPY home visitor to the home of the family for the purpose of presenting the next week's activities and reviewing the progress of the child (HIPPYUSA, n.d.f.).

Home visitor – A home visitor is a member of the participating community who delivers the HIPPY curriculum to parents in the program. They visit participating parents in their homes weekly to instruct them in using the HIPPY educational materials.

Literacy – Literacy is the ability to read and write printed text.

No Child Left Behind (NCLB) – Signed by President George W. Bush on January 8, 2002, the NCLB Act gives the U.S. schools historical education reform based on stronger accountability for results, more freedom for states and communities, proven education methods, and higher parent involvement requirements (U.S. Department of Education, n.d.).

Parent involvement – Parent involvement is the participation of parents in regular, two-way, meaningful communication involving student academic learning and other school activities ensuring that parents play an integral role in assisting their child's learning and ensuring that parents are encouraged to be actively involved in their child's education at school.

School readiness – The National Education Goals Panel determined that school readiness should be thought of as having at least the following dimensions: health and physical development, emotional wellbeing and social competence, approaches to

learning, communication skills, and cognition and general knowledge (Kagan et al., 1995).

Teenage mothers – Teenage mothers for this study are defined as those mothers who were 19 years or younger at the time of the birth of their first child.

Traditional-age mothers – For this study, traditional-age mothers are those mothers who were older than 19 at the time of their first child's birth.

Summary

Despite the fact that the HIPPY program addresses many of the risk factors often experienced by children born to teenage mothers, questions remain about the school readiness of these children. Among HIPPY families, are there still measurable differences in the school readiness of children born to teenage mothers versus children born to traditional-age mothers? The purpose of this study is to examine the effects of teenage motherhood on the school readiness, literacy skills, and parental involvement of children participating in the HIPPY early intervention program as well as make recommendations for optimal outcomes. The study will first review the literature related to school readiness and its impact on future school success. The unique circumstances of children born to teenage mothers will also be addressed. Finally, an overview of the HIPPY program will be included.

CHAPTER 2

LITERATURE REVIEW

This review of literature examines the characteristics of teenage mothers and the family conditions they provide for their children. In addition, the impact of being the child of a teenage mother on children's school readiness, parent involvement, and emergent literacy skills is examined. Definitions, theories, and policies regarding school readiness, parent involvement, and emergent literacy are reviewed along with selected theoretical models and empirical research. Finally, this review also examines the history and research related to the Home Instruction for Parents of Preschool Youngsters (HIPPY) Program.

School Readiness

In light of the trend toward high-stakes testing and other accountability demands, policymakers are focusing on the early childhood years as a crucial step in developing the competencies that form the basis of future academic success. In his endorsement of the Head Start reforms of 2002, President George W. Bush (2002) endorsed programs that focus on building early academic skills, observing that "on the first day of school, children need to know letters and numbers. They need a strong vocabulary. These are the building blocks of learning, and this nation must provide them" (p. 12). The School Readiness Act of 2005 reauthorized the Head Start Act of 1965 which provides early childhood programs to low income children (Office of Management and Budget, 2005). In particular, the School Readiness Act of 2005 addressed the alignment of Head Start programs with K-12 evidence-based academic standards and programs. This alignment places additional focus on the improvement of school readiness by ensuring children is given the necessary foundation for future educational success.

Definitions of School Readiness

There is no single definition of school readiness. Most commonly, school readiness is regarded in terms of children's competencies (e.g. cognitive, linguistic,

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academic, social-emotional) upon school entry. Readiness implies the mastery of certain basic skills or abilities that serve as a basis for a child's school success. Most simply defined, school readiness is the preparedness of children to learn what schools expect or want them to learn (Edwards, 1999; Parker, Boak, Griffin, Ripple, & Peay, 1999). The problem is that this definition does not consider the child's individual characteristics such as learning style and environment (Mashburn & Pianta, 2006).

Another definition looks at school readiness as a set of interactions and transactions between people (children, teachers, parents, and other caregivers), settings (home, school, childcare) and institutions (communities, neighborhoods, and governments) (Duncan et al., 2007; NAEYC, 2004). This definition takes a more child-centered approach. A child's individual characteristics contribute to the environments in which the child interacts and the rate at which the child may learn new skills (Duncan et al., 2007). Pyle, Bates, Greif, and Furlong (2005) investigated the contextual, social, language, and learning factors that influences the success of preschoolers transitioning into kindergarten. Findings indicated that their parents' comfort with the home-school collaboration and their relationship with school personnel were a stronger predictor of kindergarten success than the academic and social skills of the child. These findings support the idea that school readiness is a product of the interactions between the child, family, and school personnel.

In reality, the concept of school readiness is multidimensional and includes the skills of the child, family and environmental factors, behavioral and cognitive aspects of a child's development, the child's adaptation to the classroom as well as characteristics of the educational and community systems available to the child and family (Child Trends, 2003). As Meisels (1999) pointed out, the notion of school readiness is relative: "one child's readiness may be another child's long ago accomplishment or another child's yet-to-be-achieved success" (p. 44).

Most schools in the United States rely on age alone to determine when a child is ready to enter school when in reality the physical, social, emotional, and cognitive development of five year olds varies greatly. However, recent research casts doubt on the traditional idea that children progress in a set rate through specific stages of physical, social, emotional, and cognitive development, and that they must reach a particular age or maturity level before they are ready to learn (Bowman, Donovan, & Burns, 2001). Children's early learning and development is complex and influenced by individual, cultural, and contextual variation (Kagan et al., 1995). Bowman et al. (2001) found that when young children have the opportunity to participate in various learning experiences, they in turn have the ability to think well beyond what would otherwise be observed. A child who is ready to learn will not be able to unless he or she is presented the opportunity (Meisels, 1999).

Since no national definition of school readiness exists, each local community is free to define readiness for themselves; however, in educational circles most definitions of school readiness stem from the work of the NEGP which identified three components to school readiness: children's readiness for school, the school's readiness to receive children from various backgrounds and ability, and the community's readiness to support families with services and supports that contribute to children's school readiness (Kagan et al., 1995). The NAEYC adopted this definition and emphasis that all areas of a child's development must be included in the definition of readiness (NAEYC, 2004).

This study focuses on the first component of school readiness identified by the NEGP – the child's readiness for school. According to the NEGP there are five dimensions of children's readiness for school: health and physical development; emotional wellbeing and social competence, approaches to learning, communication skills, and cognition and general knowledge (Kagan et al., 1995). It should be noted that while these dimensions are interdependent, each is empirically and theoretically distinct.

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When discussing children's school readiness, each of the five dimensions is necessary but not sufficient in and of itself.

Kagan et al. (1995) describe each of the five dimensions of school readiness as follows. Health and physical development encompasses characteristics such as, physical fitness, rate of growth, medical conditions such as sickle cell anemia, malnutrition, disabilities, fine and gross motor skills, and self-care skills. Emotional wellbeing and social competence include self-concept and self-efficacy, the ability to form positive relationships with others, the ability to express feelings appropriately, and sensitivity to other's feelings. Approaches to learning include openness and curiosity to new tasks and challenges, task persistence, attentiveness, imagination, and learning style. Communication skills involve both verbal language skills and emergent literacy skills. Verbal language includes listening, speaking, social uses of language, and spoken vocabulary. Emergent literacy includes prerequisite skills for the development of reading and writing such as interest in books and stories, print awareness, and emergent writing. Finally, cognition and general knowledge encompasses the understanding of the properties of objects such as color, the understanding of the relationship between objects, and the acquisition of the convention of society such as knowing their name and address.

Why is School Readiness Important?

The early years lay the foundation for a child's future success (Magnuson & Waldfogel, 2005). The first 5 years of life are critical to a child's lifelong development. Young children's earliest experiences and environments set the stage for future development and success in school and life (Snonkoff & Phillips, 2000). Past research has demonstrated that children's earliest cognitive and language development predict later academic outcomes such as report card grades, test scores, and grade retention (Blair, 2001). Discoveries in brain research demonstrate that early experiences affect the development of the brain by establishing the neural connections that provide the

foundation for language, reasoning, problem solving, social skills, behavior, and emotional health (Thompson, 2001).

Despite the attention and focus on school readiness in recent years, research still shows that a gap between the academic abilities of high- and low-income exists before children enter kindergarten (Lee & Burkam, 2002; Zill, 1999). The result is that "children from more disadvantaged backgrounds…lag further behind in acquiring more sophisticated reading and math knowledge and skills such as recognizing words by sight or solving simple addition and subtraction problems" (p. 12). In a study using data from the ECLS – Kindergarten Cohort minority children on average came to kindergarten with lower math skills, literacy skills, and poorer social development than did white students. The same study found that school readiness at kindergarten was significantly related to eventual reading and mathematics achievement in fifth grade.

Another study using longitudinal data sets used meta-analysis to determine if children's early reading, math, and socio-emotional skills predicted later school achievement. Results showed that early math skills have the greatest predictive power, followed by reading skills and then attention. This was true for both boys and girls (Duncan et al., 2007).

Public Policy Related to School Readiness

In 1991, the nation focused its attention on school readiness through the establishment of six National Education Goals with the first one being "All children will start school ready to learn" (NEGP, 1991, p. 2). The first nationwide law addressing school readiness, it was signed into law on March 31,1994. This act provided resources to states and communities for readiness activities and other programs that focused on the fulfillment of the National Education Goals 2000. Goals 2000 established a framework in which to identify world-class academic standards, to measure student progress, and to provide the support that students may need to meet the standards (Kagan et al., 1995). The National Education Goal Act solidified into law the six original

education goals concerning school readiness, school completion, student academic achievement, leadership in math and science, adult literacy, and safe and drug-free schools and added two new goals: encouraging teacher professional development and parental participation (NEGP, 1997). The eight National Education Goals defined by the governors and by Congress to improve learning and teaching in the nation's education system are:

Goal 1 - Ready to Learn

Goal 2 - School Completion

Goal 3 - Student Achievement and Citizenship

Goal 4 - Teacher Education and Professional Development

Goal 5 - Mathematics and Science

Goal 6 - Adult Literacy and Lifelong Learning

Goal 7 - Safe, Disciplined, and Alcohol- and Drug-free Schools

Goal 8 - Parental Participation

The goals helped provide a national framework for education reform and promote systemic changes needed to ensure equitable educational opportunities and high levels of educational achievement for all students.

Recently the school readiness landscape has begun to change against a backdrop of national policies that emphasize the importance of children's reading and math literacy as key goals during prekindergarten and kindergarten. The most significant national education policy in recent years is the No Child Left Behind Act (NCLB: U.S. Congress, 2002). The goal of the NCLB is to ensure that public schools are teaching students what they need to know to be successful in life. While the academic assessment requirements of NCLB (U.S. Congress) are not directed at early childhood, NCLB (U.S. Congress) provides grants aimed at enhancing the school readiness of young children, particularly those who are disadvantaged, and prevent them from encountering difficulties once they enter school.

Considerable and needed attention has been paid to early childhood literacy, but mathematics instruction is also key to success in elementary and secondary school and often defines higher education and career choices. In 2002, the National Association for the Education of Young Children and the National Council of Teachers of Mathematics (NCTM) jointly issued a position statement: Early Childhood Mathematics: Promoting Good Beginnings (NAEYC & NCTM, 2002). In the position statement, NAEYC and NCTM affirm that high-quality mathematics education be accessible for all 3- to 6-year-old children. The recognition of the need for a greater focus on early math skills comes in response to beliefs about the future and the educational needs of citizens of the 21st century.

In 2005 the National Governors Association (NGA: NGA Task Force on School Readiness, 2005) published a list of recommendations based on two years of work from the NGA Task Force on School Readiness and more than a decade's worth of research. The report contains a list of policy recommendations for how governors can promote ready states, ready schools, ready communities, ready families, and ready children. The extensive list of recommendations includes: partnering with private and public stakeholders to create school readiness strategic plans, supporting a high-quality early care and education workforce, and providing new funding sources and leveraging existing resources to help build a more comprehensive school readiness system. Many of the report's recommendations are already in place to varying degrees in different states.

The NGA recognizes that strengthening achievement requires not only getting children ready for school, but also getting schools ready for the particular children they serve. By coordinating efforts with families and community resources to address the needs of young children, educators can improve children's readiness for school (NGA Task Force on School Readiness, 2005). Through school programs and strategies, educators can improve the school's readiness to promote optimal learning for all

children including children most at risk for school failure. Schools also must acknowledge the many individual differences between children and establish appropriate expectations for all children entering kindergarten (NAEYC, 2004).

Family Roles and Influences on School Readiness

The family plays a critical role in the development of successful patterns for lifelong learning. Several features of the home learning environment such as maternal education, family income, and parenting practices have been identified as important predictors of child outcomes (Bennett, Weigel, & Martin, 2002; Brooks-Gunn, Berlin, & Fulingi, 2000; Kagan et al., 1995). The landmark report, *From Neurons to Neighborhoods*, states, "striking disparities in what children know and can do are evident well before they enter kindergarten. These differences are strongly associated with social and economic circumstances, and they are predictive of subsequent academic performance" (Snonkoff & Phillips, 2000, p. 89). The report goes on to state, "children grow and thrive… when there is a positive interaction among family, school, community, and the child" (p. 225).

According to the NAEYC (2004), children enter kindergarten with a multitude of needs that span the continuum of growth and development. Developmental delays, physical disabilities, social and emotional needs, and limited English proficiency can impede their learning in the classroom. In addition to learning and developmental needs, many young children arrive at school with needs that are related to the structure of their family, the socioeconomic status of their family, or the ethnic/cultural background of their family. These children may need additional support and resources from schools, classrooms, teachers, and the community to have a successful experience in kindergarten and early primary programs (NAEYC, 2004).

Theoretical Views of School Readiness

Several theories of child development and learning have influenced discussions of school readiness. These theories include the maturationist, environmentalist,

constructivist, and ecological perspectives of development. Maturationist theory was advanced by the work of Arnold Gesell. Maturationists believe that development is a biological process that occurs automatically in predictable, sequential stages over time (Hunt, 1969). Because development and school readiness occur naturally and automatically, maturationists believe the best practices are for parents to teach young children to recite the alphabet and count while being patient and waiting for children to become ready for kindergarten (Gesell, 1933). If a child is developmentally unready for school, maturationists might suggest referrals to transitional kindergartens, retention, or holding children out of school for an additional year (DeCos, 1997). Schools, educators, and parents sometimes use these practices when a young child developmentally lags behind his or her peers. The young child's underperformance is interpreted as the child needing more time to acquire the knowledge and skills needed to perform at the level of his or her peers (DeCos).

Theorists such as John Watson, B.F. Skinner, and Albert Bandura contributed greatly to the environmentalist perspective of development. Environmentalists believe the child's environment shapes learning and behavior (Hunt, 1969). Kindergarten readiness, according to the environmentalists, is the age or stage when young children can respond appropriately to the environment of the school and the classroom (e.g., rules and regulations, curriculum activities, positive behavior in group settings, and directions and instructions from teachers and other adults in the school (Bandura, 1986). This viewpoint is evident in kindergarten classrooms where young children are expected to sit at desks arranged in rows and listen attentively to their teachers (DeCos, 1997). When young children are unable to respond appropriately to the classroom and school environment, they often are labeled as having some form of learning disability and are tracked in classrooms with curriculum designed to control their behaviors and responses (DeCos).

Theorists such as Jean Piaget, Maria Montessori, and Lev Vygotsky advanced the constructivist perspective of readiness and development. Although their work varies greatly, each articulates a similar context of learning and development. They are consistent in their belief that learning and development occur when young children interact with the environment and people around them (Daniels, 2001). Constructivist-influenced schools and educators focus much attention on the physical environment and the curriculum of the early childhood classroom (Daniels).

In an ecological model, school readiness is understood in terms of the influence of contexts (e.g., family, classroom, and community) and the connections among these contexts (e.g., family-school relationships) at any given time and across time (Parker et al., 1999). An ecologist believes a successful transition to kindergarten is fundamentally a matter of establishing a relationship between the home and the school in which the child's development is the key focus or goal (Pianta, 2007). This model draws on the work of Bronfenbrenner and others in describing ways in which children influence the contexts in which they live and the ways in which those contexts also affect experiences (Bronfenbrenner & Morris, 1998).

Emergent Literacy and School Readiness

The development of literacy skills is essential for children to be ready for school and was identified by the National Goals Panel as one of the five dimensions essential for school readiness (Bowman et al., 2001; Karoly, Kilburn, & Cannon, 2005; NEGP, 1997; Whitehurst & Lonigan, 2001). Early literacy development has received much attention, given research indicating that preschoolers' literacy and language abilities may predict their reading achievements (Karoly et al., 2005; Murphey, 2003). The amount and types of verbal interactions a child has with their family and caregivers greatly influence the child's language development and emergent literacy (Dickinson & McCabe, 2001). As a result, the literacy-related skills a child develops during the preschool age create the foundation for long-term educational success.

What is Emergent Literacy?

The term emergent literacy was first introduced by Clay (1972) and includes print awareness, story sense, and the writing process. Emergent literacy is concerned with the earliest phases of literacy development, the period between birth and the time when children read and write conventionally. Emerging literacy also consists of those practices, attitudes, and skills that are foundational to literacy and are developed early in life before formal instruction or school entry (Oxford & Spieker, 2006). Before young children have any formal literacy instruction, they display many capacities and skills which are directly related to their literacy development (Snow, Burns, & Griffin, 1998). Emergent literacy draws from Vygotsky's social cultural theory and includes the skills, knowledge, and attitudes children acquire from their families and cultures (Whitehurst & Lonigan, 2001).

Why is Emergent Literacy Important?

Research indicates specific skills and abilities of children ages birth through 5 years predict later reading outcomes. Children who possess early literacy skills such as listening comprehension, oral language vocabulary, alphabet knowledge, phonological/ phonemic awareness (the ability to discriminate sounds in words), invented spelling, environmental print, and concepts about print were found to have strong literacy skills later in life (Dickinson & McCabe, 2001). While all of these emergent literacy skills correlate with later literacy achievement, one of the most robust predictors of later literacy achievement is a young child's vocabulary.

Understanding the meanings of words is critical to understanding what a child reads. Children with large vocabularies are less likely to have problems learning to read (National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network, 2005). Exposure to less common, more sophisticated vocabulary (rare words) at home relates directly to children's vocabulary acquisition. Rare words are those that go beyond the typical 8,500 most common words in the English language

(Nagy & Scott, 2000). Good readers combine a variety of strategies to read words. Evidence is clear, children reared in families where parents provide rich language and literacy support do better in school than those who do not (Muter, Hulme, Snowling, & Stevenson, 2004; Snow, Burns, & Griffin, 1998). Language-poor families are likely to use fewer different words in their everyday conversations, and the language environment is more likely to be controlling and punitive (Dickinson & Neuman, 2006).

Emergent Literacy Policy

With the wealth of research to support the importance of emergent literacy and its vital role in school readiness, it is of little surprise that literacy has become a priority of national policy. The Bush administration's early childhood initiative *Good Start, Grow Smart* requires accountability and a new set of literacy, language, and numeracy standards for early childhood programs (*Good Start, Grow Smart: The Bush Administration's Early Childhood Initiative*, n.d.).

The Early Reading First program is one example of a program funded through the *Good Start, Grow Smart* (n.d.) initiative. This program provides competitive grants to early childhood programs to develop model programs to support the literacy skills and school readiness of preschool-aged children, particularly those from low-income families. Program activities prepare teachers to provide high-quality language, literacy, and pre-reading activities, using scientifically based research to support children's understanding of letters, letter sounds, and the blending of sounds and words. The Early Reading First programs also promote the use of an increasingly complex and rich spoken vocabulary, developed in part through teacher-read stories, to help children build a strong foundation for learning to read.

Parent Involvement and School Readiness

Children's school readiness is greatly impacted by their parents' involvement in their education. Research shows that greater parent involvement in children's learning positively affects the child's school performance, including higher academic

achievement and greater social and emotional development (Allen & Daly, 2002; Barton, 2003; (Desforges & Abouchaar, 2003; Fan & Chen, 2001; Fantuzzo & McWayne, 2002; Scribner, Young, & Pedroza, 1999; Vaden-Kiernan & McManus, 2005). K-12 students at every level make greater gains in achievement when their parents are aware of, knowledgeable of, and encouraging about their children's school experiences (Henderson & Mapp, 2002).

When families are involved in their children's early childhood education, children experience greater success once they enter elementary school (Miedel & Reynolds, 1999). Studies report that children whose parents are involved in their schooling are more likely to earn high grades and enjoy school than children whose parents are not involved in their children's schooling (Vaden-Kiernan & McManus, 2005). Children of involved parents are also more likely to have higher educational aspirations and motivation to achieve (McNeal, 1999). In addition, parent involvement allows parents to monitor school and classroom activities, and to coordinate their efforts with teachers.

Benefits of Parent Involvement

The evidence about the benefits of parents being involved in their children's education in general, and their children's literacy activities in particular, is overwhelming (Gest, Freeman, Domitrovich, & Welsh, 2004; Wade & Moore, 2000). Early reading experiences with their parents prepare children for the benefits of formal literacy instruction. Indeed, parental involvement in their child's reading has been found to be the most important determinant of language and emergent literacy (Senechal & LeFevre, 2002). In addition, parents who introduce their babies to books give them a head start in school and an advantage over their peers throughout primary school (Wade & Moore, 2000).

Involvement with reading activities at home also has significant positive influences not only on reading achievement, language comprehension, and expressive language skills, but also on children's interest in reading, attitudes towards reading, and

attentiveness in the classroom (Gest et al., 2004; Wade & Moore, 2000). Parental involvement in their child's literacy practices is a more powerful force than other family background variables such as social class, family size, and level of parental education (Flouri & Buchanan, 2004). Additionally, children with richer home literacy environments demonstrate higher levels of reading knowledge and skills at kindergarten entry (Nord, Lennon, Liu, & Chandler, 2000). Research also shows that the earlier parents become involved in their children's literacy practices, the more profound the results and the longer-lasting the effects (Mullis, Mullis, Cornille, Ritchson, & Sullender, 2004). Of all school subjects, reading has been found to be most sensitive to parental influences (Senechal & LeFevre, 2002). In turn, success in reading is a gateway to success in other academic areas as well (Mullis et al., 2004).

Parent Involvement Policy in Education

The benefits of parental involvement in the realms of literacy and educational achievement prompted legislatures to include it as one of the National Education Goals 2000, and parent involvement was mandated in the NCLB (U.S. Congress, 2002) of 2001. NCLB (U.S. Congress) defines parental involvement as regular, two-way, and meaningful communication between parents and schools to ensure that parents are full partners in their children's educational experience (Henderson & Mapp, 2002). NCLB (U.S. Congress) cites the National Parent Teacher Association (PTA) standards of parent involvement, which are based on the work of Joyce Epstein (1995). Epstein suggested a widely recognized typology to account for different levels of parental involvement in their children's education. Epstein defined six levels (types) of school-related opportunities for parental involvement: (a) assisting parents in child-rearing skills, (b) school-parent communication, (c) involving parents in school volunteer opportunities, (d) involving parents in home-based learning, (e) involving parents in school decision-making, and (f) involving parents in school-community collaborations.

Signed into law in early 2002, NCLB (U.S. Congress, 2002) changed the national education landscape, ushering in a substantially more expansive federal role in education at the state and local levels. The law established a more rigorous set of student performance requirements as a foundation for holding states, districts, and schools accountable for the academic success of all students. Indeed, the cornerstone of NCLB (U.S. Congress) is its focus on accountability and transparency regarding how well schools and students are performing. On parental involvement in particular, NCLB's (U.S. Congress) key provisions reflect an action framework that tracks the three overlapping elements of effective parent-school interaction: information, engagement, and advocacy (Henderson & Mapp, 2002).

All three of the parent involvement provisions assume the need to work with parents before a child reaches school. Under NCLB (U.S. Congress, 2002), schools must work with parents by informing and educating them to be the support system for their children. Parents must be taught how to meaningfully interact with their children so the parents can be the lifeline of their child's education and not the educational system itself (U.S. Department of Education, n.d.).

One program that attempts to provide parents with the support, information, and tools they need in order to take on their critical first teacher role is the HIPPY program. The HIPPY program is an internationally acclaimed early childhood program presently in 146 program sites in 25 states and the District of Columbia, serving over 16,000 children and their families (About HIPPY, n.d.).

Home Instruction for Parents of Preschool Youngsters

History of HIPPY

HIPPY was developed as an experimental study in 1969 at the National Council of Jewish Women Research Institute for Innovation in Education, located at Hebrew University in Israel. Led by Professor Avima D. Lombard, the program was spurred by evidence that some early education intervention programs could help prepare children

from low-income families to succeed in school (Westheimer, 2003). The goal of the project was to study home-based education for parents of preschool children. The first HIPPY families were immigrants with low education levels and limited incomes (Lombard, 1981). As a result, many of the immigrant children fell behind native Israeli children in school achievement. HIPPY was founded on the idea that home instruction could improve children's learning achievements in school (HIPPY International, n.d.). The Israel Ministry of Education and Culture was impressed with the results of the pilot project, so in 1975 HIPPY went from a university experiment to become a country-wide, home-based early childhood education program. The ministry of education made HIPPY available to communities which had large numbers of children who were educationally at-risk.

The National Council of Jewish Women Research Institute at the Hebrew University still maintains program quality in Israel. It has also become an international center for information on HIPPY. In 1980, the Research Institute sponsored an international seminar on HIPPY (HIPPY International, n.d.). Experts in early childhood from around the world attended and agreed that HIPPY could be implemented in a variety of settings in different countries stirring international interest in HIPPY.

Since its beginnings in Israel, HIPPY has spread to the United States, Turkey, Holland, Germany, South Africa, New Zealand, Australia, Canada, El Salvador, France, Singapore, and Zimbabwe (HIPPY International, n.d.). Different organizations within these countries deliver services to more than 22,000 families under the umbrella of the HIPPY International Network. Being part of the Network means that the programs have a contractual agreement with Hebrew University to operate the program and that the programs are visited and monitored by HIPPY International.

HIPPY started in the United States in 1984, in Richmond, VA, and Tulsa, OK (About HIPPY, n.d.). HIPPY has greatly expanded in the United States. The number of programs has grown from just 12 programs in 1990 to 153 HIPPY program sites in

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25 states, the District of Columbia, and Guam serving over 16,000 children and their families (HIPPYUSA, 2007). Every year new communities add HIPPY to their early childhood and parent involvement programming. U.S. programs today are far and wide, in areas as different as inner city Detroit, rural New York, and a small fishing village in Alaska. Parents are served in their native language of English, Spanish, or Haitian Creole. Some local communities have also adapted the HIPPY materials for use with Vietnamese, Cambodian, Chinese, and Somalian families. Regardless of language being served, mothers, fathers, grandparents, and other adults work with HIPPY children from age 3 to age 5 to provide them with the skills for academic success.

Theoretical Approaches to HIPPY

In addition to serving as an early education program, HIPPY incorporates features of family support programs. HIPPY is based on an ecological approach that recognizes children's development as powerfully influenced by the families, communities, and societies in which they live (Westheimer, 2003). HIPPY therefore aims to create greater continuity between home and school by enhancing children's home learning environments. HIPPY programs are typically funded and administered by local agencies (usually public schools or community-based organizations) which work to develop community support and connections to other community-based organizations (Baker, Piotrkowski, & Brooks-Gunn, 1999).

Family Support Theory

HIPPY programs provide support for families in a way that is designed to recognize and respect family needs and values, another common feature of family support programs. For example, HIPPY paraprofessional home visitors live in the same neighborhoods as the parents with whom they work, because program designers assumed that paraprofessionals who shared similar backgrounds and lifestyles with the families would be nonjudgmental of the parents, better able to deliver the program materials in a way that was consistent with the lifestyles and cultural belief systems of

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the families, and better able to establish rapport with families, which in turn would encourage the families to learn and use the skills that were taught (Westheimer, 2003).

Finally, HIPPY, like many other family support programs, respects the cultural diversity of the families it serves (Baker et al., 1999). HIPPY books and activity packets have been revised significantly during the past 5 years to make them more appropriate for America's ethnically and culturally diverse families. However, HIPPY diverges from some other family support programs in using a structured approach with parents, with set lesson plans designed to enhance children's cognitive skills. This approach contrasts with the more individualized nature of many family support programs.

HIPPY Program Effectiveness

The HIPPY program has resulted in positive outcomes for the participating children and families as well as for whole communities where the program is being implemented. Research shows accumulated evidence documenting the positive impacts of HIPPY, both on children's school readiness when entering kindergarten and later academic performance in higher grades (Baker et al., 1999; BarHava-Monteith, Harre, & Field, 1999; Garcia, 2006; Jacobson, 2003). Additionally, research documents the impact of HIPPY on parents participating in the program (Jacobson, 2003; Roundtree, 2003; Westheimer, 2003).

Evidence of increased school readiness. The first major U.S. study, funded primarily by the U.S. Department of Education, studied the outcomes of HIPPY children in two states, New York and Arkansas (Baker et al., 1999). The two-site, two-cohort longitudinal study of HIPPY examined the effects of HIPPY on children's school performance through the second grade. The design at each of the sites was different – quasi-experimental in one site with nonrandomized comparison groups and experimental in the other with randomized controls. In one site, the HIPPY children were compared to children who had no preschool services whatsoever; in the other site they were compared to children who, like the HIPPY children, had participated in a full-day,

high-quality prekindergarten program. As they began kindergarten, HIPPY children in the first cohort outperformed those in the comparison groups on objective measures of school performance and teacher ratings of their motivation and adaptation to the classroom. HIPPY children also had better attendance, scored higher on standardized achievement tests, and were perceived by their teachers as better students. While these results were not replicated in the second cohort, the study concluded that there were significant findings in both cities in Cohort I which supported the hypothesis that participation in the HIPPY program improves children's school performance and competence.

Another study by BarHava-Monteith et al. (1999) measured the impact of participation in the HIPPY program in New Zealand on children's reading ability, school readiness, and school behavior. In three separate studies, children in the HIPPY program were matched with comparison children who had not participated in HIPPY. The children were then assessed using a Reading Diagnostic Survey, the Metropolitan Readiness test, and the Behavioral Academic Self Esteem Scale. HIPPY children consistently performed better on all of the measures than their peers, whether they were compared to students similar to themselves or to other school peers. Based on these results the study suggested that HIPPY plays a valuable role in enabling children from disadvantaged backgrounds to succeed in school.

A study conducted in Texas by Jacobson (2003) looked at the effectiveness of HIPPY in four cities in Texas by studying children's school adaptability and functioning. Kindergarten teachers were asked to rate HIPPY children on their classroom adaptation and school readiness when compared with other children in their classroom. For each of the 3 years reported in this study, teachers rated three-quarters of the HIPPY children as average or above average. Also, the children enrolled in HIPPY show evidence of expected personal and social development and language learning, literacy, and math. While the children fared better in structured, concrete activities, they demonstrated less

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competence in areas of meaning, interpretation, and self-initiated learning as compared to their classmates.

Evidence of later school achievement. Bradley and Gilkey (2003) conducted a quasi-experimental study to determine the effects of the HIPPY program on children who had completed two full years of the program and who were enrolled in third and sixth grades. The study used a quasi-experimental study using a post-hoc matching design to compare children who participated in the HIPPY program with similar children who had other preschool experiences. Child outcomes were examined in 5 categories: (a) school attendance; (b) official actions (suspension, retention, and special education) taken by the school district that affected students' experience in school; (c) classroom grades; (d) standardized achievement test scores; and (e) student behavior. Results showed a modest positive impact on school suspensions, classroom behavior, and achievement test scores at both grade levels.

A recent study conducted in Texas by Garcia (2006) assessed HIPPY's impact on the academic achievement of Hispanic English language learners. Using a quasi-experimental design, the academic success of Hispanic third grade children who participated in the HIPPY program as 4- and 5- year olds was compared to a matched group of Hispanic third grade students who attended preschool programs offered by the public school district but not HIPPY. Comparison of state mandated standardized tests in reading and math revealed that HIPPY children consistently outperformed their non-HIPPY peers. In addition, more students from the HIPPY group completed the tests in English rather than Spanish.

Evidence of parent outcomes. The HIPPY program also purposes to prepare children for school by enhancing the home literacy environment, the quality of parent-child verbal interaction, and parents' ability to help their children learn. One study investigated the scaffolding behavior of mother-child dyads participating in the HIPPY program (Roundtree, 2003). Pre- and post-HIPPY observations looked at how mothers

and children engaged in HIPPY activities. All of the mothers demonstrated a range of scaffolding behavior during their post-HIPPY observation.

In a quasi-experimental study, BarHava-Monteith et al. (2003) assessed the benefits of HIPPY to parents who participate in the program. The study examined the formal educational involvement, attitudes towards education, and self-esteem of a sample of both HIPPY and non-HIPPY parents in New Zealand. HIPPY parents were significantly more involved than comparison caregivers in educational activities. These activities included things like helping with field trips, serving on school committees, and serving as teachers' aids. HIPPY parents were also significantly more likely to be involved in an adult education class. No significant differences were found in terms of attitude and self-esteem.

In Jacobson's (2003) study mentioned earlier, parent involvement was assessed using a parent interview developed by the Center for Parent Education at the University of North Texas, by adapting instruments developed by the Center for Young Children and Families at Teachers College, Columbia University. Over half (61.9%) of the parents reported that they frequently or always encouraged their child to read or look through books or any other printed matter. In addition, 88.5% of parents reported that they became more aware of the importance of reading by participating in the HIPPY program.

<div align="center">Teenage Mothers and Their Children</div>

Adolescent girls having babies is not a new phenomenon. The normal age for beginning to raise children has varied through time and across cultures. What is new is that the vast majority of adolescent mothers are single and choosing to keep and raise their babies. The birth rate for teenagers reached its peak in the 1950s at 90 per 1000 births (Holgate, Evans, & Yuen, 2006), and had dropped to 40.4 per 1000 births by 2005 (Child Trends Data Bank, 2006). However, the teenage birth rate for Hispanic girls is 81.5 per 1000 births in 2005, twice that of the general teenage population.

According to Klein (2007), out-of-wedlock births over the past four decades have increased four fold while the option of adoption is chosen far less frequently. Henman (2007) reported that 90% of unwed mothers now choose to keep and raise their babies. In the past it was imperative for a woman to mask the pregnancy through marriage, adoption, or abortion. Illegitimacy was a bad thing, a social and personal evil. A young woman had to hide the mistake in order to live a normal life again (Terry-Humen et al., 2005). Now the life-course options available to young women are much more complex than in the past, and there are many detours from the traditional progression from school to dating to marriage to family. As the issue of teenagers having babies became established as a social issue in the early 70s, value related terms such as unwed mother and illegitimate began to be replaced by less threatening terms such as adolescent pregnancy or teenage pregnancy. Wong and Checkland (2002) identified this change in terminology as reflecting a shift from viewing teenage pregnancy as a mere value judgment to a social condition.

While the standard age to ideally have a child is hard to establish, most teenage parents are considered to be those who have not competed high school (Wong & Checkland, 2002). The problematic status of teenage pregnancies comes from both the immaturity of the parent and the inevitable social disadvantages of teenage parenting. The younger the girl, the more pronounced the effects on the mother and the baby seem to be (Miller, Sage, & Winward, 2003). While the young girl's life is obviously altered forever by a pregnancy, the long-term effects for the child may be less obvious in the first year or two of life but can be readily seen by school entry (Levine & Pollack, 2003; Luster & Haddow, 2005; Magnuson & Waldfogel, 2005).

Characteristics of Teenage Mothers

Psychological state of being a teenager. Being a teenager is a developmental challenge that every young person must maneuver through in order to reach adulthood. The psychological state of a teenager is teetering between childhood and adulthood.

During this time of life, the teenager can be consumed with the search for independence and identity apart from their own parents, and they must go through an identity crisis in order to form a mature identity (Whitman, Borkowski, Keogh, & Weed, 2001). Both the teenage years and infancy are developmentally dense times, and the developmental needs of a teenage mother and the needs of her child often clash (Wong & Checkland, 2002).

Younger teenagers' abstract reasoning skills. Younger teenagers often have poorly developed abstract reasoning skills (Wong & Checkland, 2002). Younger teenagers are more likely to have a hard time generalizing from a specific experience or applying general knowledge to a specific situation. This may cause a young teenage mother to have a hard time applying a pediatrician's advice. For instance, if a pediatrician asks a teenage mother to limit apple juice, the teenage mother may simply switch to orange juice instead of limiting all juice intake. Younger teenagers may also have difficulty understanding the developmental reason for a child's behavior. A common example would be a teenage mother's belief that her 2-month-old baby is waking in the night just because he or she is mad at her and not because nighttime waking is developmentally normal for an infant. Because of their likelihood to have poorly developed abstract reasoning skills, young teenage mothers may not provide adequate nutrition for their babies, or they may have inappropriate developmental goals.

Depression and self-esteem in teenage mothers. A single adolescent mother often has less time than her counterparts without a child to socialize, develop as an individual, and learn how to develop healthy interpersonal relationships, positive self-image, and a good support network (Wong & Checkland, 2002). Teenage mothers were also found to be more depressed than older mothers. Levels of depression and self-esteem in the mother have been associated with more behavior problems in children as they get older (National Campaign to Prevent Teen Pregnancy, 2004). Support in the

process of becoming independent and support of good parenting choices is important for both the child and the mother (Wong & Checkland, 2002).

General knowledge in area of child development. Teenage mothers generally have less knowledge of child development than mothers who postpone childbearing. Teenage mothers rely mostly on family and friends instead of more knowledgeable professionals such as pediatricians (National Campaign to Prevent Teen Pregnancy, 2004). Classes offered in school often deal more in areas of basic care of physical needs and do not include much in the areas of cognitive, language, and social development. The teenage mother's lack of general knowledge in child development can affect the child's cognitive achievement and behavioral adjustment in school. According to Whitman et al. (2001), a mother's lack of child development knowledge contributes to unrealistic developmental and behavioral expectations for the child. Teenage mothers who lack child development knowledge may also have inappropriate goals for their children. The lack of understanding of developmental behavior can also lead to physical or emotional harm of the baby (Wong & Checkland, 2002). To the extent that adolescent mothers possess less accurate and inadequate knowledge about child development and parenting practices, once they become parents they may be predisposed to miss the connection between their children's behavior and their own parenting practices (Luster & Haddow, 2005). Mothers may view the source of a child's behavior problem as residing solely in the child. These maternal perceptions, which can develop during the first months of parenting, can affect the quality of parent-child interactions and subsequently hinder child development, both in emotional and cognitive realms (Whitman et al., 2001).

Physical risks to teenage mother and baby. While not the only factor in the differences found in children of teenage mothers, the physical risks to a teenage mother and her baby may play a part in the overall picture. The physical risks to a teenage mother and her baby can affect the cognitive achievement and behavioral adjustment of

the child. The results of these physical risks can affect the mother and baby in a manner that continues throughout the lifetime of the child.

Teenage mothers are more likely to have low birth weight, a risk factor for a variety of health and developmental problems babies (Miedel & Reynolds, 1999; Miller et al., 2003). Teenage mothers are also more likely to smoke during pregnancy than older pregnant women which has been associated with a greater chance of having a premature birth and a low birth weight baby (Levine & Pollack, 2003). These complications have been shown to put the child at greater risk for serious and long-term illnesses, developmental delays, and death in the first year of life (Child Trends Data Bank, 2006). Compared with older mothers, teenage mothers are more likely to experience relationship instability, have lower educational attainment, have less spacing between children, and be less likely to cultivate stimulating home environments for their children (Cushman & McNamara, 2004; Desforges & Abouchaar, 2003).

Younger teenagers (those under 16) are at a significantly higher risk of premature delivery, low birth weight babies, eclampsia, and anemia than those who delay pregnancy until the later teenage years (Child Trends Data Bank, 2006). Whitman et al. (2001) related poor fetal growth to increased levels of mental health problems, academic function impairment, and poor overall health in children when compared to children who were of normal birth weight. Low birth weight is also associated with later cognitive ability and learning disabilities in children with normal intelligence and normal neurological status (Moore, Papillo, & Manlove, 2002). In addition to cognitive development, Moore et al. found that children ages 11 to 12 born as low birth weight or premature have more social behavior problems. While teenagers are not the only group at risk for premature delivery and low birth weight babies, these risks are significant and can affect the child's future cognitive and behavioral outcomes.

Teenage mothers often have lower breastfeeding rates than older mothers, often due to poor self-image and influences of family (Wong & Checkland, 2002). Ineichen,

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Pierce, & Lawrenson (1997) found that most teenage mothers had never witnessed breastfeeding firsthand and over half never spoke with a healthcare professional about breastfeeding. The physical benefits of breast milk for an infant are undisputed by most healthcare professionals, and recent research has documented cognitive and emotional benefits as well.

Babies of teenage mothers often receive less well-baby care in the first year of life (Maynard, 1997). Healthcare professionals have stressed the importance of well-baby care for many years. Children who receive inadequate well-baby care may have health or developmental problems that go undetected until long-term damage has occurred. A physical problem that may be easily treated when detected early can lead to a permanent problem that could affect the child's cognitive and behavioral adjustment in school if left untreated.

Consequences of Teenage Parenting

Socio-economic level of teenage mothers. One of the most pronounced results of teenage pregnancy is the socio-economic status (SES) of teenage mothers. Even at age 27, more than 40 % of teenage mothers still report living in poverty, and more than 80 % report having been on welfare for some period of time during the 10 years following the birth of their child (Maynard, 1997). According to Maynard (1997), teenage mothers are less likely to complete school, less likely to marry, less likely to participate in the labor force, likely to earn less at a job, and more likely to rely on public assistance.

Teenage pregnancy and childbearing problems are compounded by the fact that more and more pregnant teenagers are facing the responsibilities of parenthood alone with about 80% of teenage mothers giving birth outside of marriage (Cushman & McNamara, 2004). Teenage mothers who have children outside of marriage are at a greater disadvantage both before and after giving birth. Women who become pregnant

as teenagers are also less likely to marry later on compared to those who decide to postpone childbirth (Wong & Checkland, 2002)

Teenage mothers have lower levels of educational attainment (Cushman & McNamara, 2004). Among teenagers that have given birth, only 30% earned a diploma by the age of 30, compared to 85% of those who postponed childbirth (Klein, 2007). The impact of the low educational attainment has become even more profound on a woman's ability to earn as the earnings prospects for unskilled workers have declined (Maynard, 1997). Consequently, many teenage mothers are stuck in low paying jobs or on welfare. The level of a woman's education can affect her children in more ways than just financially. Children's cognitive performance on a battery of assessments relating to social and intellectual development is directly related to the mother's educational attainment, in particular graduation from high school (Terry-Humen et al., 2005).

Few job opportunities are available to teenage mothers due to their lack of education and affordable child-care (National Campaign to Prevent Teen Pregnancy, 2004). The gap in income for teenage parents continues to grow throughout their lifetime (Maynard, 1997). By age 30 the annual earnings of teenage mothers is only 58% of the earnings of those who delayed childbearing. Having a baby means dropping out of school for 80% of teenage mothers, and only 56% finally graduate from high school (National Campaign to Prevent Teen Pregnancy, 2004). Further, a teenage parent will make only one-half of the lifetime earnings of a mother who waited until at least age 20 to have her first child. Being a teenage mother often means living below the poverty line. In 2004, 81% of young mothers living alone had incomes below the federal poverty level. Even if married, their poverty rates were twice the national average.

Teenage mothers are more likely to live below the poverty level and rely on public assistance (Maynard, 1997). According to Maynard, 52% of the women on Aid to Families with Dependent Children (AFDC) gave birth to their first child under age 20,

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and four out of five teenage mothers participated in some type of public assistance. Another contributing factor to the need for welfare by teenage mothers is the fact that teenage fathers are less likely to pay child support than older fathers (Child Trends, 2003).

Teenage father involvement. Teenage fathers are often not mentioned in studies of teenage pregnancy, but they can play an important part in the life of their child if they remain involved. According to Speak, Cameron, & Gilroy (1997), father involvement includes direct contact through care-giving and shared activities, and availability to child for interaction, while responsibility is making sure the child is taken care of and that resources are available for the child. Most teenage fathers disappear or are extremely peripheral by the time the child is age 2. About 57% of fathers see their child once a week while their child is under age 2, and 40% of fathers see their child once a week while their child is between the ages of 2½ and 4½. However only 27% of fathers see their child once a week while their child is between the ages 4½ and 7½, and a mere 22% of fathers see their child once a week once their child is older than 7½.

The physical contact that fathers give is important for their children's cognitive and behavioral outcomes. The father's presence in the first 3 years of the child's life related positively to a child's cognitive and behavioral outcomes at age 4 to 6. In addition, children with a strong emotional bond to their father were less depressed and had higher educational attainment (Quinton, Pollock, & Golding, 2002). In their research of children on welfare, which includes the majority of the children of teenage mothers, Greene and Moore (1996) found that formal and informal child support from the father was associated with positive child outcomes. Children whose fathers gave them informal support such as time, emotional support, or school involvement scored higher on measures of personal maturity. Informal child support was also positively correlated with the quality of the child's home environment and especially the cognitive stimulation in the home.

Home environment of teenage mothers. The home environment of any child plays an important role in their future development. The homes of children of teenage mothers are often different from the homes of children whose parents are older. The homes of teenage mothers tend to be less cognitively stimulating and less nurturing than homes of older mothers (Maynard, 1997). Fewell and Wheeden (1998) found that the home environments of adolescent mothers often lacked many of the characteristics associated with supportive, effective learning environments for infants and young children. Environmental experiences during the childhood years are extremely important and significantly shape the competence of the child as a learner.

Many teenage mothers live with their parents or another family member. While assistance and emotional support from family members can alleviate stress on a teenage mother, which benefits both the mother and her child, over involvement by family members can be negatively related to infant development due to conflicting ideas about child rearing (Wong & Checkland, 2002). Teenage mothers must eventually learn to be a parent independent from their own family, and over involvement can hamper this process.

The marriages and future marriages of teenage mothers are more than three times more likely to end in divorce than those who delay child bearing, and thus they spend more time as single mothers (Brooks-Gunn & Chase-Lansdale, 1995). Harrist and Ainslie (1998) found that marital discord and the quality of the marital relationship were associated with behavior problems in children and can predict a lower quality of parent-child relations, withdrawal, and aggression. Harrist and Ainslie determined that marital discord operates in indirect ways to undermine children's optimal development. Ackerman, Kogos, Youngstrom, Schoff, and Izard (1999) found a direct, concurrent relationship between family instability, such as divorce and single-parent homes, and problem behaviors at ages 5 and 7 years old in children from economically disadvantaged homes.

Parenting Skills of Teenage Mothers

Adolescent mothers often have less optimal parenting styles when compared to adult mothers. Research indicates that teenage mothers are often less cognitively prepared for parenting, which translates into less than optimal parenting practices (Miller, Heysek, Whitman, & Borkowski, 1996; Sommer, et al., 1993). They are often more punitive and rough with their infants, have poor knowledge of infant and child development, inappropriate expectations of their children's development, are less sensitive to their children's needs, and are less verbal in their interactions with their children (Wong & Checkland, 2002). This type of parenting does not provide a rich or stimulating environment resulting in future delays in cognitive development perhaps because these circumstances are the antithesis of self-regulation.

Teenage mothers are more likely to be depressed than older mothers, and their levels of self-esteem and depression are associated with increased behavior problems in their children (Brooks-Gunn & Chase-Lansdale, 1995; Leadbeater & Bishop, 1994; Spieker, Larson, Lewis, Keller & Gilchrist, 1999). In addition, because of their likelihood to have an immature parenting style, their children are at high risk for abuse and neglect, and physically abused and neglected children are more likely to experience problems in school (Barth, 1998; Kelley, Thornberry, & Smith, 1997). Mothers of any age who perceive their parenting roles as more difficult tend to experience feelings of helplessness and inadequacy about their abilities to parent effectively and parents who perceive their parenting role as stressful are less effective in their parenting practices (Sheinkopf, Lester, LaGasse, Seifer, Bauer, Shankaran, Bada, Poole, & Wright, 2006). In turn, higher levels of reported parenting stress have been associated with a lack of maternal responsiveness to infant cues, lower levels of positive maternal affect, as well as insecure child attachment and child noncompliance (Crnic et al., 1986; Dix, 1991; Sheinkopf, et al., 2006). Finally, inaccurate and negative maternal perceptions regarding children's behaviors have been associated with lower maternal

responsiveness, greater interference, and increased irritability in the child (Crockenberg & Smith, 1982; Nover, Shore, Timberlake, & Greenspan, 1984; Renk, Roddenberry, Oliveros, & Sieger, 2007).

Links between Teenage Parenting and Child Outcomes

While many of the disadvantages of teenage mothers reflect factors that existed before they became mothers, teenage parenthood seems to exasperate them. Research suggests that the children of teenage mothers face many adverse consequences such as lower scores on tests of cognitive ability and academic achievement, lower school readiness, lower graduation rates, and more behavior problems.

School readiness of children born to teenage mothers. A recent study conducted by Terry-Humen et al. (2005) used the Early Childhood Longitudinal – Kindergarten Cohort data to examine impact of maternal age on the cognition and general knowledge, language and communication, attitudes toward learning, social-emotional development, and physical wellbeing before and after controlling for background characteristics. Before controlling for background characteristics, children of teenage mothers showed impaired development on all dimensions of school readiness mentioned above except in the areas of fine and gross motor skills. However, after controlling for background characteristics, some of the effects disappeared. Significant differences that remained were in the areas of general knowledge, language and communication skills (ability to read independently and early writing ability), and some test and assessment scores (but only when compared with children of mothers ages 22 to 29).

In a study conducted as part of the Notre Dame Parenting Project, O'Callaghan et al. (2001) found cognitive, socioemotional, adaptive, and achievement-related problems in children of teenage mothers. The Notre Dame Parenting Project has gathered data on adolescent mothers and their children from pregnancy through the first

8 years of life. In contrast to studies of teenage mothers and children in large urban studies, this sample of children had mothers who on average were older, less disadvantaged socioeconomically, less involved in drugs and alcohol, and more likely to remain in school until obtaining a diploma. Children in this study also displayed developmental problems in the intellectual, socioemotional, adaptive, and academic domains, all of which comprise school readiness. Researchers also found 80% of the children scored below the 10th percentile on the Peabody Picture Vocabulary Test–Revised (PPVT-R), and 57% of the children scored in this same range on the Developmental Test of Visual-Motor Integration (DVMI). In addition, 50% of the children were in the 10th percentile or below on the reading portion of the Peabody Individual Achievement Test (PIAT), and 34% were in the 10th percentile or below on the math portion the same test.

Not only do children of teenage mothers experience serious intellectual problems as early as 3 and 5 years of age, these problems continue as children reach elementary school. O'Calleghan et al. (2001) found that the standardized achievement of the children of teenage mothers was nearly a standard deviation below the expected mean, reflecting poor levels of school functioning in the second grade. At age 8, IQ scores fell nearly a standard deviation below the population mean, in the low average range, and adaptive behavior fell within the moderately-low range. PPVT-R scores for reading and math, as well as receptive language skills, were also one standard deviation below the mean, reflecting low-average performance in school.

Oxford and Spieker (2006) examined predictors for preschool language performance for children of teenage mothers. The six domains of risk factors examined were low maternal verbal ability, intergenerational risk, contextual risk, relational risk, home environmental risk, and child characteristics. Regression analysis revealed that poor language-learning home environment was associated with low preschool language

scores even after accounting for maternal characteristics. In addition the study found that having a mother with low verbal ability amplifies the other risk factors.

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In contrast, other studies have found that when controlling for socio-economic and family background, the discrepancies in academic outcomes between children of teenage mothers and the children of traditional-age mothers can be explained by the individual and family backgrounds of the teenage mothers (Levine & Pollack, 2003). Sepulveda (2007) found that when controlling for race, sex, mother's cognitive ability, grandmother's education and whether the mom lived in the south or in rural areas, the gap is reduced substantially, although there were still significant differences in behavior problems and in some of the tests -PIAT math and PPVT scores.

Behavior and social problems of children born to teenage mothers. The literature also documents behavior and social problems of children born to teenage mothers relative to those born to traditional-age mothers (Levine & Pollack, 2003; O'Callaghan et al., 2001). In the Notre Dame study mentioned earlier, researchers administered the Child Behavior Checklist (CBCL) to children of teenage mothers and found that at age 3, 36.9% exhibited internalizing problems, and 35.5% exhibited externalizing problems. Internalizing problems are turning feelings of frustration, embarrassment, and anger inwardly upon oneself in the form of depression, low self-esteem, helplessness, or self-loathing (Luster & Haddow, 2005). Externalizing problems refers to a range of rule-breaking behaviors and conduct problems, including physical and verbal aggression,

defiance, and lying. At 5 years of age, the proportion of children in the normal range of behavioral functioning increased. However, 24.5% of the sample continued to display internalizing behavior problems.

Another study used data from the National Longitudinal Study data to determine the effects of teenage motherhood on the behavior of their children. Hofferth and Reid (2002) compared outcomes on the Behavior Problems Index to examine the effect of maternal age at first birth. By comparing children of teenage mothers to children born to traditional age mothers of the same time period, the researchers were able to separate the influence of changes over time on children's behavior. When these changes over time were taken into account, children born to teenage mothers scored significantly worse on the Behavior Problems Index than those born to traditional-age mothers.

Later success of children born to teenage mothers. As they grow older, children of teenage mothers are at greater risk for running away from home, and sons born to teenage mothers are more likely to spend part of their lives in prison (Grogger, 1997; Moore et al., 1997). Children of teenage mothers are more likely to become parents themselves before the age of 19 and are more likely to bear children out of wedlock when compared to children born to women who delayed birth (Jaffee, Caspi, Moffitt, Belsky, & Silva, 2001). Children of teenage mothers are also more likely to drop out of high school when compared to the children of mothers ages 20 to 21 (Terry-Humen et al., 1997). Only 77% of children born to teenage mothers complete high school by early adulthood compared to 89% of children born to traditional-age mothers.

Why children born to teenage mothers are at-risk. There is great debate in the literature as to whether the many social, behavioral, and academic problems facing the children of teenage mothers are actually causal or if they are simply a result of individual, family, and community characteristics of the mother. In contrast to the studies mentioned earlier that documented the adverse consequences of teenage parenting, there is a body of research which suggests that teenage childbearing does not appear

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to be harmful for children when controlling for background factors (Levine & Pollack, 2003). Jaffee et al. (2001) proposed two possibilities as to why children born to teenage mothers are at risk for adverse outcomes.

The first possibility is that there are strong social-influence effects resulting from teenage childbearing. This refers to the social, economic, and family consequences of teenage parenting that make life difficult for teenage mothers to provide their children with a stable, stimulating home life. This possibility also assumes the negative outcomes for the children of teenage mothers are due to the background characteristics of the mother rather than maternal age (Jaffe et al., 2001).

The second possibility proposed by Jaffe et al. (2001) is that there are strong social-selection effects that lead to teenage childbearing. This means that certain social and psychological characteristics may place some girls at a greater risk of teenage pregnancy. Teenage parents then transmit these risky characteristics to their children either socially or genetically. According to the social-selection viewpoint, teenage motherhood is merely an indicator of the risk a young girl will convey to her child eventually (independent of her age at first birth) rather a contributing cause of adverse outcomes.

In a 20-year longitudinal study, Jaffe et al. (2001) tested how much the effects of teenage parenthood on child outcomes could be accounted for by social-selection effect versus social-influence effect. Results provided support for both effects. Across all of the outcomes measured, maternal characteristics (social-selection) and family circumstances (social-influence) together accounted for 39% of the effect of teenage parenting. Social-selection alone accounted for approximately 18% of the effect of teenage parenting on child outcomes while social-influence alone explained 21% of the effect. Whichever explanation applied, being born the child of a teenage mother is a powerful marker for adverse outcomes (Levine & Pollack, 2003).

Summary

In recent decades, the importance of school readiness has become increasingly more apparent for all children but particularly for children already at risk for later school failure. Due to the developmental, social, and economic characteristics of the majority of teenage age mothers, research suggests that their children are at a significantly higher risk of entering school not ready to learn, having low parent involvement, and having low emergent literacy skills than children born to traditional-age mothers. While many of the disadvantages of teenage mothers reflect factors that existed before they became mothers, teenage parenthood seems to exasperate them. While HIPPY has made significant advances in the school readiness and parent involvement of at-risk children, researchers have yet to examine HIPPY's effect on the school readiness of one of the most at-risk populations, children of teenage mothers.

CHAPTER 3

METHOD

Introduction

Chapter 3 describes the methodology used in this study. Specific details related to the location, time frame, and participants of the study are discussed. This chapter also discusses the instruments used to collect data as well as the data collection procedures and the data analysis used to answer the questions of the study.

General Overview of the Study

Due to disparities in their life experiences, many young children face deficiencies in the years leading up to school entry in terms of emotional support, intellectual stimulation, or access to resources which can impede their ability to enter school ready to learn. These deficiencies are predictive of subsequent academic performance (Shonkoff & Phillips, 2000). In few other populations of children are these deficiencies as evident as they are in the lives of children born to teenage mothers. This study examined the differences between the children of teenage mothers and the children of traditional-age mothers who participate in the HIPPY early intervention program. HIPPY addresses parent involvement and school readiness of at-risk children. While HIPPY has made significant advances in these areas, researchers have yet to examine HIPPY's effect on the school readiness of one of the most at-risk populations, children of teenage mothers. The purpose of this study was to examine the effects of teenage motherhood on the school readiness, literacy skills, and parental involvement of children participating in the HIPPY early intervention program as well as make recommendations for optimal outcomes.

All of the children in this study came from the HIPPY programs at five diverse, urban school districts in the state of Texas. Using a correlational research design, this study examined the results of quantitative measures of children's school readiness, literacy skills, and parent involvement as well as the results of a qualitative measure of

the parent's satisfaction with the HIPPY program. The study was a quasi-experimental, mixed-method design. Participants were selected for the study based on their birth order and the age of their mother at the time of their birth. The teenage mother group consisted of children who were first-born and whose mothers were 19 years old or younger at the time of their child's birth. The traditional-age mother group consisted of children of whose mothers were older than 19 years of age at the time of their child's birth and who otherwise matched the teenage mother group in birth order, ethnicity, home language, income level, mother's education, gender, home visitor, and elementary school attendance.

There was no direct contact with the children during this study. Data were collected from the children's parents, kindergarten teachers, and district personnel. Study researchers, along with the family's HIPPY home visitor serving as translator when needed, administered the *Parent and Teacher Involvement Measure-Parent Version* and the *HIPPY Satisfaction Survey* to the children's mothers. The children's kindergarten teachers provided data via completion of two online surveys, the *Kindergarten Readiness Survey* and the *Parent and Teacher Involvement Measure-Teacher Version.* Finally, scores from the Texas Primary Reading Inventory (TPRI) and its Spanish counterpart El Inventario de Lectura en Español de Tejas (Tejas/LEE) were provided by personnel at the five targeted school districts. Using all these data, this study attempted to answer the following research questions:

1. To what extent are there statistically significant differences in the parent involvement of teenage mothers versus traditional-age mothers participating in the HIPPY program?

2. To what extent are there statistically significant differences in school readiness of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program?

3. To what extent are there statistically significant differences in the literacy skills of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program?

4. To what extent do parent involvement and school readiness scores differ based on the literacy level of kindergarten children born to teenage mothers participating in the HIPPY program?

5. To what extent do parent involvement and school readiness scores differ based on the literacy level of kindergarten children born to traditional-age mothers participating in the HIPPY program?

6. What specific components of the HIPPY program do teenage mothers and traditional-age mothers in HIPPY suggest are the most beneficial to them and their children?

7. What additional information or training do teenage and traditional-age mothers feel HIPPY could provide to better support them as their children's first teacher and thus better ensure their children enter school ready to learn?

Research Design

The study was considered correlational since assignment of participants to the teenage mother group and the traditional-age mother group was predetermined, and the researcher made comparisons between the two groups. In order to add qualitative flesh to the quantitative bones a mixed method research design was implemented to first compare school readiness, parent involvement, and literacy of children of teenage mothers who participate in HIPPY to children born to traditional-age mothers who also participate in HIPPY and then gain further insight into those comparisons. Among the purposes for mixed-method evaluation design, Green, Caracelli, and Graham (1989) highlighted several major ones that might enhance the evaluation.

First, triangulation tests the consistency of findings obtained through different instruments (Green et al., 1989). In this study triangulation increased the chance to

control, or at least assess, some of the threats or multiple causes influencing the results. Second, a mixed-method evaluation design complementarily clarifies and illustrates results from one method with the use of another method. In this study, the HIPPY Satisfaction Interview added information about the children's HIPPY experience and qualified the scores and statistics. Third, initiation stimulates new research questions or challenges results obtained through one method. In this study, interviews with teenage mothers provided new insights into how the HIPPY program has been beneficial to them and their children as well as provided insight into any perceived short-comings of the program. In summary, by integrating different methods the study yielded better results in terms of quality and scope.

<div align="center">Limitations of the Study</div>

All the families in this study participated in the HIPPY program and received the same curriculum designed and copyrighted by HIPPYUSA. While the lessons were presented to families in the manner prescribed by HIPPYUSA, the study did not control for the following factors.

1. Teenage mothers who enrolled and remained in the HIPPY program may have been different from other teenage mothers.
2. Differences in the communities of the five targeted school districts.
3. Individual differences of the home visitors' teaching styles, competence, and relationship with the families they serve.
4. Differences in home environments.
5. Differences in the children's parents' education.
6. Differences in family structure.
7. Differences in the parents' competency levels.
8. Differences in the importance parents place on education.
9. Children's individual preschool experiences.

10. Individual elementary school climates.

11. Individual kindergarten teachers' teaching styles.

Location of Study

This study took place in five large, urban school districts in Texas. During the 2006-2007 school year, District 1 served a 351-square-mile area and covered 11 municipalities. The district had 43 high schools (including magnet schools), 41 middle schools, and 158 elementary schools, enrolling an average of 161,000 students during the 2006-2007 school year. District 1 had a diverse student population with 64.1% Hispanic students, 5.1% White students, 29.7% African American students, .9% Asian students, and .2% American Indian students. The district also reported almost 70 different languages spoken in the students' homes.

District 2 was a 58-square mile district serving more than 23,000 students. The district had 36 campuses, including 24 elementary schools, 7 middle schools, 2 ninth-grade centers, 2 high schools, and 2 alternative education schools. The district had a diverse student population with 58.0% Hispanic students, 21.2% White students, 16.3% African American students, 3.8% Asian students, and less than 1% American Indian students.

The District 3 covered 48.5 square miles. It had almost 33,000 students attending 4 high schools, 7 middle schools, 20 elementary schools, and 3 early childhood centers. The student population of District 3 was very diverse as well with 13.1% African Americans, less than .3% American Indian, 4.3% Asian, 62.6% Hispanic, and 19.7% White. According to the Home Language Survey completed for student enrollment, 66 languages were spoken by families in District 3, with the vast majority of languages other than English being Spanish.

District 4 covered 230 square miles. Twelve high schools, 17 junior high schools, 78 elementary schools, and 6 specialty campuses served more than 82,000 students.

District 4 had a diverse student population with 26.6% White, 58.1% Hispanic, 12.1% African American, 3.1% Asian, and less than 1% Native American.

District 5 operated more than 300 schools within a 301-square-mile area and was the largest public school district in Texas during the 2006-2007 school year. District 5 served over 202,000 students of a variety of ethnicities including 58% Hispanic, 30% African-American, 9 % White, and 3% Asian/Pacific Islander. Figure 1 visually represents the demographic make up of each of the five districts.
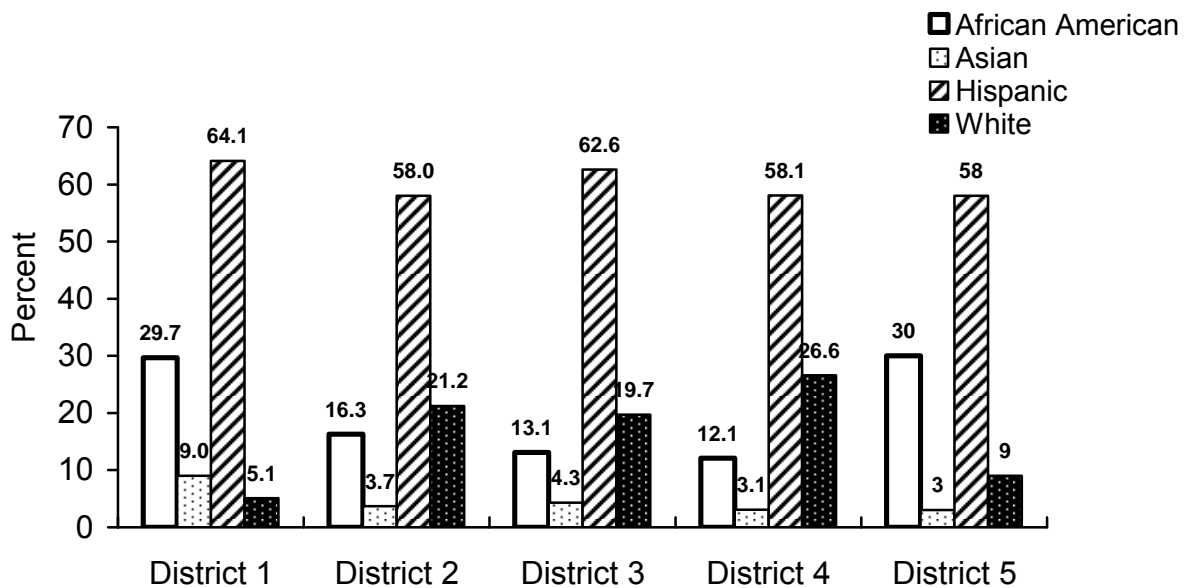
Figure 1. Ethnic distribution of five targeted school districts.

Population

This study population was limited to kindergarten students enrolled in the HIPPY program of the five targeted school districts during the 2007-2008 school year. To be eligible for the HIPPY program, a child must be economically disadvantaged (ED) as evidenced by low socioeconomic status through the free and reduced federal lunch program, academically disadvantaged due to being an English language learner (LEE), or homeless (C. Weir, personal communication, June 23, 2007). The majority of HIPPY participants in the four targeted school districts were Hispanic, speaking predominately

Spanish at home. Table 1 displays the number of kindergartners enrolled in the HIPPY

programs for the five targeted school districts along with their home language and

ethnicity during the 2006-2007 school year.

Table 1

Demographics of Kindergartners Enrolled in the HIPPY Programs of Five Targeted

School Districts

District	N	Home Language (%)			Ethnicity (%)			
					African			
		English	Spanish	Other	American	Asian	White	Hispanic
1	155	10.3	89.4	0.3	7.1	4.9	0.4	94.7
2	34	11.8	87.9	0.3	5.9	0.3	0.0	93.8
3	140	3.6	96.2	0.2	0.2	0.2	1.4	98.2
4	27	.07	99.3	0.0	0.0	0.0	0.0	100.0
5	12	0	100.0	0.0	0.0	0.0	0.0	100.0

Note: N = number of kindergartners in HIPPY program.

The N for this study was 36 (18 in the teenage mother group and 18 in the

traditional-age mother group). Approximately 377 HIPPY kindergarten children attended

school in one of the five target school districts during the 2006-2007 school year. Two

mothers from these five school districts met the requirements of the study but declined

to participate in the study. Another two eligible children were not included in the study

due to the inability to collect surveys from their kindergarten teachers. All of the children

in this study were Hispanic and primarily spoke Spanish in the home. In addition, all of

the children were classified as economically disadvantaged and participated in either an

English as a Second Language (ESL) program or were in bilingual kindergarten

classrooms. None of the children were classified as special education. The health status

of the children was unknown and was not used to exclude children from this study. The

median annual income of HIPPY families in Texas was $10,000 during the 2006-2007 school year, and approximately 75% of mothers participating in the HIPPY program had not graduated from high school (C. Weir, personal communication, June 23, 2007).

Teenage Mother Group

The experimental group consisted of children whose mothers were teenagers at the time of their birth. Children were selected for this study based on the following requirements: they were enrolled in kindergarten at one of the targeted school districts during the 2007-2008 school year, they were their mother's first-born child, and their mother was 19 years or less at the time of their birth. Personnel at the Texas HIPPY office provided a list of HIPPY children who met these qualifications. Of the 22 children who met these qualifications, two mothers declined to participate in the study, and two teachers were unable to participate, so the total sample size of the teenage mother group was 18. The group contained 13 boys and 5 girls with an average age of 65 months at kindergarten entry. The average age at the time of the study child's birth for the teenage mother group was 17, with the youngest being 15. Only one mother in this group was single. The remaining 17 mothers were married, but only 32% were married to the child's father.

Traditional-age Mother Group

The control group consisted of children who were their mothers' first-born child and whose mothers were 19 years of age or older at the time of their birth. The children in the traditional-age mother group matched the children in the teenage mother group in ethnicity, home language, income level, mother's education, elementary school attendance, home visitor, and gender. Randomness was provided through this matching process. The HIPPY identification number and demographic characteristics of each eligible child from both groups were written on index cards. The cards were then sorted so that each child in the teenage mother group was placed in a stack with all of the matching children from traditional-age mother sample. One card from the traditional-age

mother sample was chosen at random from each stack to create the traditional-age mother group. Like the teenage mother group, the traditional-age mother group contained 13 boys and 5 girls. The average age at the time of the study child's birth for the traditional-age mother group was 27. Two mothers in this group were single. The remaining 16 mothers were married, and 61% were married to the child's father. Table 2 displays demographic characteristics for both groups.

Table 2

Demographic Characteristics of Teenage Mother and Traditional-age Mother Groups

	Teenage Mothers			Traditional-age Mothers		
Student Gender	Male	Female		Male	Female	
	13	5		13	5	
Marital Status	Single	Married	Divorced	Single	Married	Divorced
	1	16	1	2	16	0
Mother's Country of Origin	Mexico	U. S.		Mexico	U. S.	Chile
	16	2		17	0	1
Child's Age at Kindergarten Entry	65.6 months			65.7 months		
Mother's Age at Child's Birth	17.5 years			27.1 years		
Family's Annual Income	$16,350			$20,570		

Instruments

Five instruments were used in this study to gather data. Two instruments, the *Parent and Teacher Involvement – Parent Version* and the *HIPPY Satisfaction Survey,* were collected from the child's mother. The child's mother was interviewed during a regularly scheduled HIPPY Home Visit. The family's HIPPY home visitor served as a translator when needed. The *Kindergarten Readiness Survey* and the *Parent and Teacher Involvement Survey – Teacher Version* were completed by the child's

kindergarten teacher via an online survey. The final Instrument used in this study was the *TPRI/Tejas LEE.* Results from the TPRI/Tejas LEE were provided by district personnel at the five participating school districts.

Kindergarten Readiness Survey

The *Kindergarten Readiness Survey* (see Appendix A) is a 45-item survey consisting of questions adapted from the *Kindergarten Teacher Questionnaire – Fall* used in the Early Childhood Longitudinal Study (ECLS). The survey as well as all of the assessment instruments developed for ECLS were designed by a team of school curriculum specialists, teachers, and academicians assembled by the National Center for Education Statistics (NCES; Rock & Pollack, 2002).

The *Kindergarten Readiness Survey* used in this study contained five subsections which measured each of the five dimensions of kindergarten readiness as defined by the National Education Goals Panel (1991):

1. Social-emotional development (items 1 - 12)
2. Approaches to learning (items 13 - 20)
3. Language and communication skills (items 21 - 30)
4. Physical development (items 31 - 36)
5. General knowledge (items 37 - 45)

Each of the questions was answered by the child's kindergarten teacher based on how often the teacher observed the child behave or demonstrate the skill indicated. The responses were coded on a 5-point Likert scale with 5 indicating that the child always displayed the observed behavior or skill and 1 indicating that the child never displayed the desired behavior or skill. The instrument was reviewed for content validity by several experts in the field including early childhood faculty form the University of North Texas and a group of 14 kindergarten teachers from around the United States.

In order to perform psychometric analysis and receive feedback from kindergarten teachers about the content validity of the instrument, a pilot test of the

Kindergarten Readiness Survey was conducted during the Spring 2007 semester. Using a sample of 156 children, analysis yielded a Cronbach's alpha of .977 for the instrument as a whole. Item-total correlations ranged in magnitude from -.181 (item 5) to .933 (item 1); the mean item-total correlation was .660. Four items had notably low item-total correlations: item 2 (.019), item 5 (-.181), item 11 (.183), and item 19 (-.067); other item-total correlations were no lower than .578. Table 3 displays the Cronbach's alpha for each subsection.

Table 3.

Psychometric Analysis for the Kindergarten Readiness Survey

Section	α	Item-total Correlation		
		Low	High	Mean
Full instrument	.977	-.181 (item 5)	.933 (item 1)	.660
Social-emotional development	.890	-.013 (item 5)	.838 (item 4)	.634
Approaches to learning	.823	-.197 (item 19)	.823 (item 17)	.688
Communication skills	.934	.726 (item 25)	.921 (item 21)	.815
Physical development	.930	.610 (item 30)	.851 (item 26)	.748
General knowledge	.943	.553 (item 37)	.916 (item 42)	.807

Note: α = Cronbach's alpha coefficient.

Parent and Teacher Involvement – Teacher Version

The *Parent and Teacher Involvement – Teacher Version* is a 21-item measure developed originally for the Fast Track project to assess facets of parent and teacher involvement (see Appendix A; Conduct Problems Prevention Research Group [CPPRC], 1991a). The *Parent and Teacher Involvement – Teacher Version* assesses the amount and type of contact that occurs between parents and teachers, the parent's interest and comfort in talking with teachers, the parent's satisfaction with their child's

school, and the parent's degree of academic stimulation with their child (e.g., reading to them and taking them to the library). The answers are coded on 5-point Likert scale where 1 represents no involvement and 5 represents high involvement.

Psychometric analysis conducted by Malone, Miller-Johnson, and Maumary-Gremaud (2000) of the Fast Track project on the instrument as a whole yielded a Cronbach's alpha of .906. Item-total correlations ranged in magnitude from .037 (item 10) to .816 (item 12); the median item-total correlation was .588. Five items had notably low item-total correlations: item 2 (.159), item 4 (.050), item 6 (.170), item 8 (.150), and item 10 (.037); other item-total correlations were no lower than .424. Malone et al. identified three factors within the instrument which were verified using principal component analysis and constructed corresponding subscales:

1. Parent comfort and endorsement of school (items 12-18, 20, 21)

2. Parent involvement (items 5, 6, 7, 11, 19)

3. Parent-teacher contact (items 1-4, 8, 9)

Parent and Teacher Involvement Measure – Parent Version

The *Parent and Teacher Involvement Measure – Parent Version* was also developed by the Fast Track project (see Appendix C; CPPRG, 1991). This instrument contains 26 items and includes most of the items on the teacher version as well as additional items. This survey assesses the amount and type of contact that occurs between parents and teachers, the parent's interest and comfort in talking with teachers, the parent's satisfaction with their child's school, and the parent's degree of involvement in the child's education (e.g., reading to them, taking them to the library, volunteering at school, and attending school events). The answers are coded on a 5-point Likert scale including specific frequency ratings (never, once or twice a year, almost every month, almost every week, more than once per week), general impressions of frequency (not at all, a little, some, a lot, a great deal), and level of agreement with statements about school (strongly disagree, disagree, not sure, agree, strongly agree). A point value of

1 to 5 is assigned to each response with 1 representing no involvement and 5 representing high involvement.

Corrigan (2002) reported four factors within the *Parent and Teacher Involvement Measure – Parent Version* and constructed corresponding subscales:

1. Quality of the relationship between parent and teacher (items 11-17)
2. Parent's involvement and volunteering at school (items 5-7, 9, 10,18-22)
3. Parent's endorsement of child's school (items 23-26)
4. Frequency of parent-teacher contact (items 1-4)

Corrigan conducted psychometric analysis for both a normative sample of families and a high-risk sample. The subscale Cronbach's alpha for the combined normative and high-risk sample, the normative sample, and the high-risk sample are listed in Table 4.

Table 4.

Cronbach's Alpha Coefficients for Parent and Teacher Involvement Measure – Parent Version

Subscale	Combined	Normative	High-risk
Quality of the relationship between parent and teacher	.892	.896	.893
Parent involvement and volunteering	.793	.745	.815
Parent's endorsement of child's school	.892	.905	.885
Frequency of parent-teacher contact	.672	.658	.658

Note: Data from Corrigan (2002).

Texas Primary Reading Inventory/El Inventario de Lectura en Español de Tejas

Children's literacy skills were assessed using the TPRI and its Spanish counterpart Tejas LEE. It is important to note that the Tejas LEE is not a translation of the TPRI but rather a comparable assessment to TPRI for Spanish-speaking students (Texas Education Agency, 2006). The TPRI/Tejas LEE is a nationally-normed, standardized test currently being used in 98% of Texas schools with kindergarten

through grade 2, and has been used in 20 other states and 4 other countries. The TPRI/Tejas LEE is presently the only kindergarten through grade 2 reading assessment that meets all five of the criteria (phonemic awareness, phonics, comprehension, fluency, and vocabulary) required to qualify for President Bush's Reading First program under NCLB (U.S. Congress, 2002).

The TPRI/Tejas LEE consists of both a screening and a full inventory. The screening allows teachers to quickly rule out children who are highly likely to have no risk characteristics and thus allow resources to be used for further evaluation of children identified at-risk. The kindergarten level screening for the TPRI/Tejas LEE was derived from a large longitudinal study of students in kindergarten through grade 2 (Schatschneider, Francis, Foorman, & Fletcher, 1999). For kindergartners, children are given 2-minute, one-on-one screening of graphophonemic knowledge, phonemic awareness, book and print awareness, and listening comprehension (Texas Education Agency, 2006).

The TPRI/Tejas LEE is a valid and reliable assessment that provides a comprehensive picture of a student's literacy skills (Schatschneider et al., 1999). The TPRI/Tejas LEE is notable for the attention paid to collecting empirical data about the TPRI/Tejas LEE's psychometric properties. Schatschneider et al. (1999) from the Center for Academic and Reading Skills (CARS) conducted extensive psychometric analysis which revealed a Cronbach's alpha coefficient of .92. In addition, test-retest correlation was .87, and generalizability was .76. Table 5 shows the reliability for each of the 11 tasks of the middle-of-the-year kindergarten TPRI/Tejas LEE collapsing across ethnicity and gender. The screening for middle of the year had high alpha coefficients in the upper part of the excellent range.

Items were selected for the screening test from a larger battery of items that were found to distinguish statistically between successful and unsuccessful readers at the ends of grades 1 and 2. In addition, field test data were collected to examine

interrater reliability (the accuracy, agreement, and objectivity of scoring across teachers) as well as the validity of the TPRI/Tejas LEE scores compared with other well-known measures of word recognition and comprehension (Schatschneider et al., 1999). However, this screening is designed to maximize the probability that students with risk characteristics would not be missed (i.e., false negative errors), resulting in overidentification of risk status (false positive errors). The full inventory is administered to those children who are identified at risk for reading failure.

Table 5

Overall Reliabilities for Middle of Year TPRI/Tejas LEE Kindergarten Tasks

Task	N	α
Book and print awareness	527	0.54
Rhyming	540	0.87
Blending word parts	202	0.77
Blending phonemes	105	0.69
Detecting initial sounds	90	0.89
Detecting final sounds	51	0.85
Letter name identification	509	0.96
Letter identification	306	0.77
Letter sound	306	0.87
Comprehension 1	513	0.56
Comprehension 2	164	0.43
Comprehension 3	79	0.63

Note: α = Cronbach's alpha coefficient. Data from Schatschneider et al. (1999).

For the middle-of-the-year kindergarten administration of the TPRI/Tejas LEE, children are evaluated on each of the 11 Tasks in Table 5. Each of these tasks are represented on the following seven sections:

1. Section 1 - Book and print awareness

2. Section 2 - Letter naming

3. Section 3 - Letter sound identification/sound-symbol correspondence

4. Section 4 - Phonological awareness

5. Section 5 - Blending syllables into words

6. Section 6 - Decoding/single word reading

7. Section 7 - Listening comprehension

Based on the number of items in each section answered correctly, students are scored as either developed, expected, or needs intervention. Students who do not receive a score of needs intervention for any of the seven sections are considered on grade level. For the purposes of this study students were evaluated on the basis of being either on grade level or not on grade level.

HIPPY Satisfaction Survey

The *HIPPY Satisfaction Survey* (see Appendix D) consisted of 13 questions related to the components of services provided by the HIPPY program. Mothers of the study children were asked to indicate on a scale from 1 to 10 their satisfaction with that particular aspect of the HIPPY program with mean scores of 4 or less indicating low satisfaction, scores of 5-8 indicating average satisfaction, and scores of 9 or greater indicating high satisfaction. These cut-offs were determined by the quartiles of the mean scores from this study. The two lower quartiles were determined to be the low satisfaction cut-off, the third quartile was the average satisfaction cut-off, and the upper quartile was the high satisfaction cut-off.

The *HIPPY Satisfaction Survey* also contained two open-ended questions intended to gain insight into the specific aspects of the HIPPY program that support or fail to support teenage mothers and their children. This survey provided qualitative data that were useful in explaining and making inferences from the results of the quantitative analyses. The first open-ended question of the *HIPPY Satisfaction Survey* asked, "What specific components of the HIPPY program do teenage mothers in HIPPY suggest were

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the most beneficial to them and their children?" The second question of the *HIPPY Satisfaction Survey* asked, "What additional information or training do teenage mothers feel HIPPY could provide to better support them as their children's first teacher and thus better ensure their children enter school ready to learn?"

Variables

School Readiness Variables

Several dependent variables were used to examine school readiness at kindergarten entry in the areas of emotional wellbeing and social skills, approaches to learning, language and communication skills, physical health and wellbeing cognition, and general knowledge. In addition, there were variables to measure several aspects of parent involvement, HIPPY satisfaction, and literacy.

Social-emotional skills.

Social-emotional skills were measured by items 1-12 on the *School Readiness Survey* and included negative behaviors such as impulsiveness, over-activeness, adaptability, and aggressiveness. Positive behaviors included classroom adaptability, getting along with others, self-regulation, cooperation, and empathy. For each behavior, children were rated by their kindergarten teacher on a 5-point Likert scale ranging from 1 (never) to 5 (always). Items three and five were reverse coded to reflect 5 as the desired response.

Approaches to learning.

Kindergartners' approaches to learning were assessed using items 13-20 of the *School Readiness Survey.* The *School Readiness Survey* asked the child's teacher to assess how often each kindergartner exhibited behaviors such as eagerness to learn, interest in a variety of things, creativity, task persistence, concentration, and responsibility. For each behavior, children were rated by their kindergarten teacher on a 5-point Likert scale ranging from 1 (never) to 5 (always). Item 19 was reverse coded to reflect 5 as the desired response.

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Physical health and wellbeing.

The next dependent variable included a report of the child's physical health and wellbeing. The child's kindergarten teacher was asked on items 21-26 of the *School Readiness Survey* to report the child's fine and gross motor skills, general health, and personal hygiene. For each skill, children were rated by their kindergarten teacher on a 5-point Likert scale ranging from 1 (never) to 5 (always).

Language and communication skills.

Kindergarten teachers reported on their students' language and communication skills on items 27-37 on the *School Readiness Survey.* These skills included understanding and interpreting a story, naming all the letters of the alphabet, demonstrating early writing behaviors, and understanding of some of the conventions of print. For each skill, children were rated by their kindergarten teacher on a 5-point Likert scale ranging from 1 (never) to 5 (always).

Cognition and general knowledge.

The child's cognition and general knowledge at kindergarten entry was assessed using items 38-45 on the *Kindergarten Readiness Survey* by the child's kindergarten teacher. Questions included such skills as shape and color recognition; knowing their name, birthday and age; and letter and number recognition. Again teachers were asked to rate children on a 5-point Likert scale ranging from 1 (never) to 5 (always).

Parent Involvement variables

Comfort and endorsement of school.

The parent's interest and comfort in talking with teachers and the parent's satisfaction with their child's school was assessed by nine items on the *Parent and Teacher Involvement-Teacher Version* and four items on the *Parent and Teacher Involvement-Parent Version*. The child's parent was asked to rate themselves on a 5-point Likert scale ranging from 1 (not at all) to 5 (a great deal). The child's

kindergarten teacher was asked to rate the parent on a 5-point Likert scale ranging from 1 (not at all) to 5 (very interested).

Parent involvement.

Parent involvement in their child's activities such as volunteering at the school, attendance at school activities, and parent-teacher conferences, and participation in organizations such as the Parent Teacher Association (PTA) were reported by each child's kindergarten teacher by five items on the *Parent and Teacher Involvement-Teacher Version* and by each child's parent through 10 items on the *Parent and Teacher Involvement-Parent Version*. The child's parent was asked to rate themselves on a 5-point Likert scale ranging from 1 (never) to 5 (more than once per week). Likewise, the child's kindergarten teacher was asked to rate the parent on a 5-point Likert scale ranging from 1 (never) to 5 (more than once per week).

Teacher-parent contact.

The amount and type of contact that occurs between parents and teachers was assessed by six items on the *Parent and Teacher Involvement-Teacher Version* and four items on the *Parent and Teacher Involvement-Parent Version*. The child's parent was asked to rate themselves on a 5-point Likert scale ranging from 1 (never) and 5 (more than once per week). Likewise, the child's kindergarten teacher was asked to rate the parent on a 5-point Likert scale ranging from 1 (never) and 5 (more than once per week).

Quality of the relationship between parent and teacher.

The parent's interest and comfort in talking with their child's teacher was measured using seven items from the *Parent and Teacher Involvement-Parent Version.* The child's parent was asked to rate themselves on a 5-point Likert scale ranging from 1 (never) to 5 (more than once per week).

Literacy skills.

Children's literacy skills were measured using the middle-of-the-year administration of the TPRI/Tejas LEE – Kindergarten Screening. The screening consists of questions that focus on graphophonemic knowledge, phonemic awareness, book and print Awareness, and listening comprehension. Children's scores on each of the seven sections of the TPRI/Tejas LEE are categorized as developed, expected, or needs intervention. Children are considered on grade level if they do not receive a score of "needs intervention" for any of the seven sections. For the purpose of this study, literacy skills were operationalized in a dichotomous manner as either on grade level or not on grade level.

Independent Variable

The age of the child's mother at the time of the child's birth served as the grouping variable for this study. Children whose mother was 19 years old or younger at the time of their birth were placed in the teenage mother group, and children whose mother was older than 19 years at the time of their birth were placed in the traditional-age mother group.

Constants

Several social and demographic variables were included in the analyses as constants. These included characteristics of the child such as race and ethnicity (African American, Asian, Hispanic, Native American, and White), age (in months and years), birth order (primapara), and gender. Maternal and household characteristics included family structure at kindergarten entry (who the child lived with), household income level at kindergarten entry, mother's education level, and whether English was the primary language spoken in the home.

Data Collection Procedures

Data collection for this study involved the study children's mothers, kindergarten teachers, and district personnel. Approval for this study was obtained from the

Institutional Review Board at the University of North Texas as well as each of the five targeted school districts. After receiving approval, a request was submitted for the family records of all the HIPPY children enrolled in kindergarten in the state of Texas. Once the records were received, children who met the study protocol were assigned to either the teenage mother group or the traditional-age mother group, according to the method described above.

The primary researcher along with two research assistants from the Texas HIPPY program accompanied the study child's HIPPY home visitor on a regularly scheduled home visit. During this visit the researcher or assistant obtained informed consent for the study (see Appendix E) and administered the *Parent and Teacher Involvement Survey-Parent Version* and the *HIPPY Satisfaction Survey* to the child's mother. The family's HIPPY home visitor served as an interpreter when needed.

The primary researcher contacted the each child in the study's kindergarten teacher by a letter (see Appendix F), which was followed up by an e-mail. The kindergarten teachers were asked to complete the *School Readiness Survey* and the *Parent and Teacher Involvement Survey-Teacher Version* for each study child in their classroom via an online survey. Kindergarten teachers read an implied consent statement before completing the surveys (see Appendix G). Their submission of the surveys indicated their consent. As a small compensation for their time, the teachers received a $10 gift certificate to an online teaching supply store upon completion of both surveys.

Finally, district personnel provided scores from the TPRI or its Spanish counterpart Tejas LEE for each of the children in the study. This assessment was part of each district's evaluation plan and was administered by the child's kindergarten teacher.

Data Analysis

The Statistical Package for Social Sciences (SPSS) Version 15, MedCalc for Windows Version 9.39, and NUD*IST (Non-numerical Unstructured Data Indexing Searching and Theorizing) Version 6 were used to analyze the data for this study. An alpha level of .05 was used for all statistical tests.

Data Screening

The full data set was screened to check for missing data, homogeneity of variance, normal distribution, and outliers. Frequency histograms were obtained to determine whether the continuous variables were normally distributed. Individual histograms were analyzed for each variable to check for kurtosis and skewness.

Question 1

In order to determine if there was a difference between the parent involvement of children born to teenage mothers and those born to traditional-age mothers participating in the HIPPY program, an independent *t* test was performed. Four independent samples *t* tests were performed using group assignment as the independent variable and scores on each of the four parent involvement variables as the dependent variables. This analysis assessed whether the means of the two groups are statistically different from each other.

Question 2

In order to determine if there is a difference between the school readiness of children born to teenage mothers and those born to traditional-age mothers participating in the HIPPY program another series of independent *t* tests was performed. The researcher performed five independent samples *t* tests using group assignment as the independent variable and scores on each of the five school readiness variables as the dependent variables. This analysis assessed whether the means of the two groups are statistically different from each other.

Question 3

To determine the differences in the literacy skills of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program, a chi-square test of independence was conducted. The chi-square determined the proportion of children from the teenage mother group whose literacy skills were on grade level according to TPRI/Tejas LEE.

Question 4

To examine how well parent involvement and school readiness explained the differences in literacy among kindergarten students participating in the HIPPY who were born to teenage mothers, descriptive discriminant analysis (DDA) was conducted. The four parent involvement variables (comfort and endorsement of school, parent involvement, teacher-parent contact, and quality of relationship) and the five school readiness variables (social-emotional development, approaches to learning, physical development, language development, and general knowledge) were used as the discriminating variables. Whether or not the child was considered to be on grade level according to scores on the middle-of-the-year administration of the TPRI/Tejas Lee was the grouping variable. DDA assumptions requiring group membership to be mutually exclusive and collectively exhaustive were tenable because no subject belonged to more than one group and all subjects were members of one of the two groups. Evaluation of assumptions of linearity, normality, and multicollinearity revealed no threats to multivariate analysis.

To further examine the strength of the relationship between literacy skills, school readiness, and parent involvement for HIPPY children born to teenage mothers, odds ratio calculations were performed using MedCalc. The odds ratio is a way of comparing whether the probability of a certain event is the same for two groups. An odds ratio of 1 implies that the event is equally likely in both groups. An odds ratio greater than 1

implies that the event is more likely in the first group. An odds ratio less than 1 implies that the event is less likely in the first group (Stevens, 2002).

To convert the continuous variables into dichotomous variables for the odds ratio model, the mean scores for each of the variables was computed. Using SPSS, the cut-off point identifying the bottom third of the set of mean scores was identified. Mean scores that fell at or below this cut-off were coded as low, and scores above this cut-off were coded as high.

Question 5

To examine how well parent involvement and school readiness explained the differences in literacy among kindergarten students participating in the HIPPY who were born to traditional-age mothers, DDA was conducted. The four parent involvement variables (comfort and endorsement of school, parent involvement, teacher-parent contact, and quality of relationship) and the five school readiness variables (social-emotional development, approaches to learning, physical development, language development, and general knowledge) were used as the discriminating variables. Whether or not the child was considered to be on grade level according to scores on the middle-of-the-year administration of the TPRI/Tejas Lee was the grouping variable. The assumptions of DDA were analyzed using the same requirements listed for Question 4.

To further examine the strength of the relationship between literacy skills, school readiness, and parent involvement for HIPPY children born to traditional-age mothers, odds ratio calculations were performed. The odds ratios were performed using MedCalc. Continuous variables were converted into dichotomous variables using the same method described in Question 4.

Question 6

To determine the specific components of the HIPPY program mothers in the study felt were the most beneficial to them and their children, responses to the first open-ended question on the *HIPPY Satisfaction Survey* was analyzed using NUD*IST

to discover patterns and identify themes regarding the benefits of HIPPY. These themes were reported along with quotes from the mothers.

Question 7

To determine the additional information or training teenage mothers feel HIPPY could provide to better support them as their child's first teacher, the responses to the second open-ended question on the *HIPPY Satisfaction Survey* was analyzed using NUD*IST to discover patterns and identify themes regarding the benefits of HIPPY. These themes were reported along with quotes from the mothers.

CHAPTER 4

RESULTS

Introduction

The purpose of this study was to examine the effects of teenage motherhood on school readiness, literacy skills, and parental involvement of children participating in the HIPPY early intervention program as well as make recommendations for optimal outcomes. Prior research has documented the potential difficulties facing the children of teenage mothers, specifically in the area of school readiness and later academic achievement (Bennett et al., 2002; Brooks-Gunn et al., 2000; Kagan et al., 1995). This study examined the differences between teenage mothers and traditional-age mothers who participate in the HIPPY early intervention program. HIPPY addresses parent involvement and school readiness of at-risk children. While HIPPY has made significant advances in these areas, researchers have yet to examine HIPPY's effect on the school readiness of one of the most at-risk populations, children of teenage mothers.

All of the children in this study came from the HIPPY programs at five diverse, urban school districts in the state of Texas. Participants were selected for the study based on their birth order and the age of their mother at the time of their birth. The teenage mother group consisted of children who were first-born and whose mothers were 19 years old or younger at the time of their child's birth. The traditional-age mother group consisted of children of whose mothers were older than 19 at the time of their child's birth and who otherwise matched the teenage mother group in birth order, ethnicity, home language, income level, mother's education, gender, home visitor, and elementary school attendance.

Data were collected from the children's parents, kindergarten teachers, and district personnel. Study researchers, along with the family's HIPPY home visitor serving as translator when needed, administered the *Parent and Teacher Involvement Measure-Parent Version* and the *HIPPY Satisfaction Survey* to each child's mother. The

children's kindergarten teachers provided data via completion of two online surveys: the *Kindergarten Readiness Survey* and the *Parent and Teacher Involvement Measure-Teacher Version.* Finally, scores from the Texas Primary Reading Inventory (TPRI) and its Spanish counterpart El Inventario de Lectura en Español de Tejas (Tejas/LEE) were provided by personnel at the five targeted school districts. This chapter details the results of the data analysis. The data that follow indicate that there were some statistically significant differences between children born to teenage mothers and children born to traditional-age mothers participating in the HIPPY program. These difference were primarily in relation to the children's literacy skills.

Data Screening

The full data set was screened to check for missing data, homogeneity of variance, normal distribution, and outliers. Frequency histograms were obtained to determine whether the continuous variables were normally distributed. Individual histograms were analyzed for each variable to check for kurtosis and skewness.

Evaluation indicated the presence of missing data. In order to determine the method for replacing missing data, descriptive statistics were obtained using SPSS. Since there were very few (1%) values missing in the continuous variables and their location appeared to be random, SPSS was used to replace the missing data with the variable mean. There were no missing data among the dichotomous data.

Next, descriptive statistics were obtained on the intact data set in order to screen for homogeneity of variance, normal distribution, and outliers. Frequency histograms were obtained to determine whether the continuous variables were normally distributed. Individual histograms were analyzed for the four parent involvement variables (comfort and endorsement of school, parent involvement, teacher-parent contact, and quality of relationship) and the five school readiness variables (social-emotional development, approaches to learning, physical development, language development, and general knowledge) to check for kurtosis and skewness. Normality concerning skewness and

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kurtosis was evident among all continuous variables except for language development

(skewness = 2.400; kurtosis = 6.243) and general knowledge (skewness = -1.992;

kurtosis = 3.940). While these numbers were slightly higher than normal,

transformations did not improve the skewness or kurtosis, so no transformations were

performed. Table 6 lists the descriptive data for each of the continuous variables listed

above. No outliers were detected in the data.

Table 6

Descriptive Data for Continuous Variables

Variable	*N*	*M*	*SD*	Skewness	Kurtosis
Quality of relationship	36	4.09	.627	.249	-1.177
Parent involvement	36	2.93	.669	-.015	-.262
Comfort and endorsement of school	36	4.10	.506	-.924	.033
Teacher-parent contact	36	2.59	.457	.289	-.078
Social-emotional development	36	4.17	.559	-1.023	1.190
Approaches to learning	36	3.96	.518	-.210	-.577
Physical development	36	4.47	.533	-1.130	1.235
Language development	36	4.34	.352	-2.400	6.243
General knowledge	36	4.13	.688	-1.992	3.940

Note: Maximum score = 5.

Based on the preliminary analyses, the data met assumptions allowing for further

statistical testing. The mean differences between the teenage mother group and the

traditional-age mother group were analyzed using independent sample *t* tests. The

independent samples *t* test is the most commonly used method to evaluate the

differences in means between two mutually exclusive groups. Next, a chi-square test

was performed to determine the probability of a child's literacy skills being on grade

level or not on grade level, according to the middle-of-the-year administration of the TPRI/Tejas LEE, based on their belonging to either the teenage mother group or the traditional-age mother group. Chi-square analysis compared the expected ratio with the ratio actually observed to determine the probability. A Descriptive Discriminant Analysis (DDA) was conducted for each group to determine the importance of the multivariate relationships between the four parent involvement variables and the children's literacy level. Two additional DDAs (one for each group) were performed to determine the importance of the multivariate relationship between the five school readiness variables and the children's literacy level. The purpose of DDA, as it applied to this study, was to give insight into the relationship between group membership and the variables used to predict group membership (Stevens, 2002). To further examine the strength of the relationship between literacy, parent involvement, and school readiness, odds ratios were calculated using MedCalc. Finally, NUD*IST was used to analyze the qualitative data by identifying and categorizing it into themes.

<div align="center">Question 1</div>

Question 1 asked, "To what extent are there statistically significant differences in the parent involvement of teenage mothers versus traditional-age mothers participating in the HIPPY program?" Two-tailed, independent samples *t* tests were used to determine if there was a statistically significant difference between the parent involvement of children born to teenage mothers and those born to traditional-age mothers participating in the HIPPY program.

Levene's test for equality of variances was used to determine if the variances between the treatment group and the control group were homogeneous (equal). The homogeneity of variances assumption was met for all four variables: quality of relationship, $F(2, 34) = 2.302$, $p = .138$; parent involvement, $F(2, 34) = .752$, $p = .392$; comfort and endorsement of school, $F(2, 34) = .098$, $p = .756$; teacher-parent contacts, $F(2, 34) = 1.978$, $p = .169$.

Each of the four parent involvement variables served as dependant variables and assignment to the either the teenage mother group or the traditional-age mother group served as the grouping variable. While no statistically significant difference in mean scores on any of the four parent involvement variables was detected, the parent involvement variable did have a median size Cohen's d (κ = -.605), indicating some practical significance. Results from the independent samples t test for each of the parent involvement variables are listed in Table 7.

Table 7

Results of Independent Samples t *tests for Parent Involvement Variables*

Variable	Teenage Mothers		Traditional-age Mothers		df	t	p	κ
	M	SD	M	SD				
Quality of relationship	4.02	.716	4.15	.538	34	-.602	.551	-.200
Parent involvement	2.74	.744	3.13	.537	34	-1.815	.078	-.605
Comfort and endorsement of school	4.03	.531	4.17	.485	34	-.832	.411	-.277
Teacher-parent contact	2.59	.536	2.58	.377	34	.108	.915	.036

Note: *N=36.* Maximum Score = 5. *K* = Cohen's *d.*

Question 2

Question 2 asked, "To what extent are there statistically significant differences in school readiness of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program?" Two-tailed, independent samples *t* tests were used to determine if there was a statistically significant difference between the school readiness of children born to teenage mothers and those born to traditional-age mothers participating in the HIPPY program.

Levene's test for equality of variances was used to determine if the variances between the treatment group and the control group were homogeneous. The homogeneity of variances assumption was met for all five variables: social-emotional development, $F(2, 34) = .582$, $p = .451$; approaches to learning, $F(2, 34) = .102$, $p = .752$; physical development, $F(2, 34) = 2.686$, $p = .110$; language development, $F(2, 34) = 1.856$, $p = .182$; general knowledge, $F(2, 34) = .985$, $p = .328$.

Each of the five school readiness variables served as the dependent variables and assignment to the either the teenage mother group or the traditional-age mother group served as the grouping variable. While no statistically significant difference in mean scores on any of the five of the parent involvement variables was detected, the Physical Development variable did have a median size Cohen's d ($\kappa = -.591$), indicating some practical significance. Results from the independent samples t test for each of the parent involvement variables are listed in Table 8.

Table 8

Results of Independent Samples t *tests for School Readiness Variables*

Variable	Teenage Mothers		Traditional-age Mothers		df	t	p	κ
	M	SD	M	SD				
Social-emotional development	4.20	.482	4.13	.640	34	.343	.734	.114
Approaches to learning	3.92	.483	4.00	.562	34	-.477	.636	-.159
Physical development	4.31	.623	4.62	.383	34	-1.772	.085	-.591
Language development	4.27	.871	4.41	.449	34	-.590	.559	-.197
General knowledge	4.01	.797	4.26	.553	34	-1.093	.282	-.364

Note: $N = 36$. Maximum score = 5. κ = Cohen's d.

Question 3

Question 3 asked: "To what extent are there statistically significant differences in the literacy skills of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program?" A chi-square analysis was conducted to determine the differences in the literacy skills of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program. The proportion of children from the teenage mother group whose literacy skills were on grade level according to scores on the TPRI/Tejas LEE was .72, whereas the proportion from the traditional-age mother group was 1.27. The proportion of children who were on grade level according to scores on the TPRI/Tejas LEE scores differed significantly by group, χ^2 (1, N = 36) = 4.21, p < .05.

Question 4

Question 4 asked, "How do parent involvement and school readiness scores differ based on the literacy level of kindergarten children born to teenage mothers participating in the HIPPY program?" A DDA was conducted using the four parent involvement variables (comfort and endorsement of school, parent involvement, teacher-parent contact, and quality of relationship) as the discriminating variables. Another DDA was conducted using the five school readiness variables (social-emotional development, approaches to learning, physical development, language development, and general knowledge) as the discriminating variables. Whether or not the child was considered to be on grade level according to scores on the middle-of-the-year administration of the TPRI/Tejas Lee was the grouping variable for both DDAs. It should be noted that there was some question about the data fitting the DDA model. Traditionally, the subject/variable ratio needed to perform a DDA requires the number of subjects to exceed the number of variables by two. However, after an in-depth Monte Carlo study, Stevens (2002) suggested that a ratio of 20 subjects for every 1 variable is needed to obtain valid results. To further examine the strength of the relationship

between literacy, parent involvement, and school readiness, odds ratios were calculated using MedCalc.

To conduct the first analysis for the parent involvement variables among teenage mothers in the study, the assumptions of DDA were analyzed. Correlations showed that no discriminating variables were in a perfect linear correlation; however, several of the correlations were statistically significant, particularly the parent-teacher contacts variable (see Table 9). Cell sizes were determined to be adequate according to Tabachnick and Fidell (2007), and there was a multivariate normal distribution on all the discriminant variables. Box's test indicated equality of the covariance matrices, $F (15, 21.632) = 1.549$, $p=.117$.

Using the Wilks' Lambda, results indicated that the parent involvement variables contributed in a statistically significant manner to the discriminating difference between the children considered on level and not on level according to TPRI/Tejas LEE, $p = .016$. There were four continuous parent involvement variables and two groups, so only one discriminant function was produced by the analysis. This function yielded an effect size (η^2) of .68. According to Cohen (1988), this indicates that a large amount (68%) of the variance in scores on the synthetic dependant variable can be explained by group membership. The standardized function coefficients, structure coefficients, and squared structure coefficients are listed in Table 9. The centroid (mean vector) for children with on-level literacy skills was -1.239, and for the children with not-on-level literacy skills, the centroid was .991.

Table 9.

Standardized and Structure Coefficients for Parent Involvement DDA Among Teenage Mothers

Variable	Coef	r_s	r_{s^2}
Teacher-parent contacts	-1.812	-.367	13.5%
Comfort and endorsement of school	1.416	.303	9.2%
Parent involvement	.067	-.184	3.4%
Quality of relationship	.467	-.173	3.0%

Note: Coef = standardized canonical function coefficient; r_s = structure coefficient; r_{s^2} = squared structure coefficient.

Correlations showed that no discriminating variables were in a perfect linear correlation; however, several of the correlations were statistically significant (see Table 10). It is of interest to note that all of the discriminating variables in the model correlated in a statistically significant manner with parent-teacher contacts.

Table 10

Correlations Among Parent Involvement Variables for Teenage Mothers

Variable	1	2	3	4
1. Quality of relationship	--			
2. Parent involvement	.758**	--		
3. Comfort and endorsement of school	.364	.238	--	
4. Teacher-parent contact	.749**	.617**	.514**	--

Note: *p < .05; **p < .001.

To conduct the odds ratios, the four dichotomous parent involvement variables were cross-tabulated with literacy scores. This yielded frequencies that allowed for the calculation of odds ratios. Averaging across all of the parent involvement variables indicated that the odds of a teenage mother's child's literacy skills being on grade level was four times greater when their parent involvement was high compared to when their parent involvement was low. However, analysis of the main effects for each of the

variables alone did not yield statistically significant results (see Table 11). Results indicated a three-fold increased probability of a child's literacy skills being on grade level when scores on the quality of relationship and teacher-parent contact variables were high, but this increase was not statistically significant.

Table 11

Odds Ratios of Parent Involvement Variables with Literacy for Teenage Mother Group

				Confidence Interval	
Variable	Odds Ratio	z-statistic	*p*	Low	High
Quality of relationship	3.00	1.06	.29	.40	22.71
parent involvement	1.00	0.00	1.00	.15	6.42
Comfort and endorsement of school	1.40	.34	.74	.10	5.12
Teacher-parent contact	3.00	.11	.29	.40	22.71
Total	4.00	1.48	.15	.69	25.02

Note: N = 18.

The second DDA analysis utilized the five school readiness variables among teenage mothers in the study as the discriminating variables and literacy as the dependant variable. The assumptions of DDA were analyzed. Cell sizes were determined to be adequate, and there was a multivariate normal distribution on all the discriminant variables. Box's test indicated equality of the covariance matrices, F (15, 35.659) = 1.529, p = .088.

Using the Wilks' Lambda, results indicated that the multivariate relationship of the five school readiness variables did not contribute in a statistically significant manner (p = .462) to the discriminating difference between the children considered on level and not on level according to TPRI/Tejas LEE.

To conduct the odds ratio, the five dichotomous school readiness variables were cross-tabulated with literacy scores. This yielded frequencies that allowed for the calculation of odds ratios. Averaging across the five school readiness variables indicated that the odds of a teenage mother's child's literacy skills being on grade level was basically 50-50 (1.11) when their school readiness was high compared to when their school readiness was low. Results indicated an impressive 4.5 fold increased probability of a child's literacy skills being on grade level when scores on the social-emotional development and approach to learning variables were high, but this increase was not statistically significant (see Table 12).

Table 12

Odds Ratios of School Readiness Variables with Literacy for Teenage Mother Group

				Confidence Interval	
Variable	Odds Ratio	z-statistic	*p*	Low	High
Social-emotional					
development	4.50	1.45	.15	.59	34.61
Approaches to learning	4.50	1.45	.15	.59	34.61
Physical development	1.00	0.00	1.00	.16	6.42
Language development	3.00	.82	.41	.02	4.55
General knowledge	1.50	.42	.67	.10	4.35
Total	1.11	.11	.91	.16	7.51

Note: N = 18.

Question 5

Question 5 asked, "How do parent involvement and school readiness scores differ based on the literacy level of kindergarten children born to traditional-age mothers participating in the HIPPY program?" A DDA was conducted using the four parent involvement variables (comfort and endorsement of school, parent involvement, teacher-parent contact, and quality of relationship) as the discriminating variables.

Another DDA was conducted using the five school readiness variables (social-emotional development, approaches to learning, physical development, language development, and general knowledge) as the discriminating variables. Whether or not the child was considered to be on grade level according to scores on the middle-of-the-year administration of the TPRI/Tejas Lee was the grouping variable for both DDAs. To further examine the strength of the relationship between literacy, parent involvement, and school readiness, odds ratios were calculated using MedCalc.

To conduct the first DDA for this question, the assumptions of DDA were analyzed for the parent involvement variables among traditional-age mothers in the study. Cell sizes were determined to be adequate, according to Tabachnick and Fidell (2007), and there was a multivariate normal distribution on all of the discriminate variables. However, Box's test was statistically significant, $F(15, 36.303) = 3.285$, $p < .001$. While the heterogeneity of the data was not verified through Box's test, the tests of significance in DDA were robust to moderate violations of this assumption.

Even though one of the assumptions of DDA was violated, the DDA was still performed for the sake of comparison. Using the Wilks' Lambda, results indicated that the parent involvement variables did not contribute in a statistically significant manner ($p = .085$) to the discriminating difference between the children considered on level and not on level according to TPRI/Tejas LEE.

To conduct the odds ratios, the four dichotomous parent involvement variables were cross-tabulated with literacy scores. This yielded frequencies that allowed for the calculation of odds ratios using MedCalc. Averaging across all of the parent involvement variables indicated that the odds of a traditional-age mother's child's literacy skills being on grade level was two times greater when their parent involvement was high compared to when their parent involvement was low, but this increase was not statistically significant. Furthermore, analysis of the main effects for each of the parent involvement variables alone did not yield statistically significant results (see Table 13).

Table 13

Odds Ratios of Parent Involvement Variables with Literacy for Traditional-age Mother Group

Variable	Odds Ratio	z-statistic	*p*	Low	High
				Confidence Interval	
Quality of relationship	.83	.14	.88	.07	10.60
parent involvement	1.17	.12	.91	.09	13.52
Comfort and endorsement of					
school	2.50	.79	.43	.26	24.38
Teacher-parent contact	1.80	.52	.61	.19	16.98
Total	2.00	.50	.62	.13	30.16

Note: N = 18.

The third DDA analysis utilized the five school readiness variables among teenage mothers in the study as the discriminating variables and literacy as the dependant variable. The assumptions of DDA were analyzed. Cell sizes were determined to be adequate and there was a multivariate normal distribution on all the discriminant variables. Box's test indicated equality of the covariance matrices, F (15, 35.659) = 1.529, *p* = .088.

Using the Wilks' Lambda, results indicated that the multivariate relationship of the five school readiness variables did not contribute in a statistically significant manner (*p* = .697) to the discriminating difference between the children considered on level and not on level according to TPRI/Tejas LEE.

To conduct the odds ratio, the five dichotomous school readiness variables were cross-tabulated with literacy scores. This yielded frequencies that allowed for the calculation of odds ratios. Averaging across the five school readiness variables indicated that the odds of a teenage mother's child's literacy skills being on grade level

was over 12 times greater when their school readiness was high compared to when their school readiness was low. However, this increase was not statistically significant. Examination of the main effects indicated no significantly significant variations, However, results indicated a 5.22-fold increased probability of a child's literacy skills being on grade level when scores on the approach to learning variable was high and a 3.86-fold increase when scores on the social-emotional development and physical development were high (see Table 14).

Table 14

Odds Ratios of School Readiness Variables with Literacy for Traditional-age Mother Group

				Confidence Interval	
Variable	Odds Ratio	z-statistic	*p*	Low	High
Social-emotional development	3.86	.65	.52	.12	62.46
Approaches to learning	5.22	1.04	.30	.01	42.81
Physical development	3.86	.65	.40	.01	5.89
Language development	1.67	.40	.69	.05	7.41
General knowledge	2.50	.79	.43	.26	24.37
Total	12.43	1.63	.10	.01	1.66

Note: N = 18

Question 6

Question 6 asked, "What specific components of the HIPPY program do teenage mothers and traditional-age mothers in HIPPY suggest are the most beneficial to them and their children?" Mothers in both the teenage mother group and the traditional-age mother group were asked on the *HIPPY Satisfaction Survey to* answer the following question, "What aspects of the HIPPY program do you feel were particularly beneficial to you or your child?" Responses to this question were analyzed using NUD*IST to

discover patterns and identify themes regarding the benefits of HIPPY. Specifically, themes were identified through word repetition and identification of key concepts. Using NUD*IST, a list was created of all the unique words and concepts in the set of responses and the number of times each word or concept was used by teenage and traditional-age mothers. Similar words and concepts were then identified and combined. Four themes emerged and are listed along with illustrative examples in Table 15.

Responses were then coded according to their theme. Six responses included more than one theme; therefore, they received more than one code. The frequencies for each theme were tallied for the teenage mother group and the traditional-age mother group, and the frequency percentages are listed in Table 15. Eight teenage mothers and nine traditional-age mothers chose not to answer this question. Percentages were calculated only for those mothers who responded to the question.

Table 15

Themes and Illustrative Examples of the Benefits of HIPPY as Reported by Mothers

Benefits of HIPPY - Themes and Illustrative Responses	% Responded	
	Teenage Mothers	Traditional-age Mothers
Activities that promote academic skills		
"The activity packs helped my child be prepared for school and allowed him to be a level above the rest of his classmates."	90.0	88.9
Supporting parenting		
"What I feel was the most beneficial was the fact that when I correct my child I do not say 'no,' instead I ask her questions and explain things to her."	40.0	11.1
Relationship with the home visitor		
"The Home Visitor helped me understand the activities and how to do them with my child."	10.0	11.1
Literacy development		
"I liked that my child learned letters and how to retain and share information about stories."	30.0	11.1

Note: Teenage mother group, *n* = 10; traditional-age mother group, *n* = 9.

Question 7

Question 7 asked, "What additional information or training do teenage and traditional-age mothers feel HIPPY could provide to better support them as their children's first teacher and thus better ensure their children enter school ready to

learn?" Mothers in both the teenage mother group and the traditional-age mother group were asked on the *HIPPY Satisfaction Survey to* answer the following question, "Are there any additional services HIPPY could provide that would have better helped you prepare your child for school?" Responses to this question were analyzed using NUD*IST to discover patterns and identify themes regarding additional services desired by mothers in the study. Themes were identified through word repetition and identification of key concepts. Using NUD*IST, a list was created of all the unique words and concepts in the set of responses and the number of times each word or concept was used by teenage and traditional-age mothers. Similar words and concepts were then identified and combined. Four themes emerged and are listed along with illustrative examples in Table 16.

Responses were then coded according to their theme. Two responses included more than one theme; therefore, they received more than one code. The frequencies for each theme were tallied for the teenage mother group and the traditional-age mother group and the frequency percentages are listed in Table 16.

Table 16

Themes and Illustrative Examples of the Desired Additional Services of HIPPY as

Reported by Mothers

Desired Additional Services of HIPPY - Themes and Illustrative Responses	% Responded	
	Teenage Mothers	Traditional-age Mothers
Additional academic activities		
"I would like HIPPY to provide more activities that focus on reading and math."	10.0	0
Additional activities to help child learn English		
"I would like HIPPY to help me be able to help my daughter learn English."	20.0	0
Additional educational materials		
"I wish that HIPPY provided us with educational videos."	0	11.1
Nothing, the program is great		
"No, I think the program is fine just the way it is."	90.0	88.9

Note: Teenage mother group, *n* = 10; traditional-age mother group, *n* = 9.

CHAPTER 5

DISCUSSION

This study examined the differences between teenage mothers and traditional-age mothers who participate in the HIPPY early intervention program. HIPPY addresses parent involvement and school readiness of at-risk children. While HIPPY has made significant advances in these areas, researchers have yet to examine HIPPY's effect on the school readiness of one of the most at-risk populations, children of teenage mothers. The purpose of this study was to examine the effects of teenage motherhood on the school readiness, literacy skills, and parental involvement of children participating in the HIPPY early intervention program as well as make recommendations for optimal outcomes.

All of the children came from the HIPPY programs at five diverse, urban school districts in the state of Texas. Using a correlational research design, this study examined the results of quantitative measures of children's school readiness, literacy skills, and parent involvement as well as the results of a qualitative measure of the parent's satisfaction with the HIPPY program. The study was a quasi-experimental, mixed-method design. Participants were selected for the study based on their birth order and the age of their mother at the time of their birth. The teenage mother group consisted of children who were first-born and whose mothers were 19 years old or younger at the time of their child's birth. The traditional-age mother group consisted of children of whose mothers were older than 19 at the time of their child's birth and who otherwise matched the teenage mother group in birth order, ethnicity, home language, income level, mother's education, gender, home visitor, and elementary school attendance.

There was no direct contact with the children during this study. Data were collected from the children's parents, kindergarten teachers, and district personnel. Study researchers, along with the family's HIPPY home visitor serving as translator

when needed, administered the *Parent and Teacher Involvement Measure-Parent Version* and the *HIPPY Satisfaction Survey* to the children's mother. The children's kindergarten teachers provided data via completion of two online surveys, the *Kindergarten Readiness Survey* and the *Parent and Teacher Involvement Measure-Teacher Version.* Finally, scores from the Texas Primary Reading Inventory (TPRI) and its Spanish counterpart El Inventario de Lectura en Español de Tejas (Tejas/LEE) were provided by personnel at the five targeted school districts. Using all these data, this study attempted to answer the following research questions:

1. To what extent are there statistically significant differences in the parent involvement of teenage mothers versus traditional-age mothers participating in the HIPPY program?

2. To what extent are there statistically significant differences in school readiness of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program?

3. To what extent are there statistically significant differences in the literacy skills of children born to teenage mothers versus children born to traditional-age mothers participating in the HIPPY program?

4. To what extent do parent involvement and school readiness scores differ based on the literacy level of kindergarten children born to teenage mothers participating in the HIPPY program?

5. To what extent do parent involvement and school readiness scores differ based on the literacy level of kindergarten children born to traditional-age mothers participating in the HIPPY program?

6. What specific components of the HIPPY program do teenage mothers and traditional-age mothers in HIPPY suggest are the most beneficial to them and their children?

7. What additional information or training do teenage and traditional-age mothers feel HIPPY could provide to better support them as their children's first teacher and thus better ensure their children enter school ready to learn?

Summary of Results

Though this study yielded few statistically significant results, it still provided an insight into the children of teenage mothers who participate in the HIPPY program. The results of this study overall indicated that the children who participated in the HIPPY program of the five targeted schools districts and who were born to teenage mothers performed equally as well on measures of school readiness and parent involvement as children in the same HIPPY programs born to traditional-age mothers. However, the literacy skills of the children of teenage mothers were less likely to be on grade level. Among teenage mothers in the study, parent involvement statistically significantly contributed to whether a child's literacy skills were on grade level, but did not contribute in a statistically significant manner for the children of traditional-age mothers.

To answer questions 1 and 2, independent samples *t* tests were performed to determine if there was a statistically significant difference between the parent involvement and school readiness of children born to teenage mothers and those born to traditional-age mothers participating in the HIPPY program. The results of *t* tests indicate that children of teenage mothers scored slightly, but not statistically significantly lower on three of the four measures of parent involvement included in this study. Figure 2 graphically displays the relationship between the means of the four parent involvement variables for teenage mothers and traditional-age mothers.
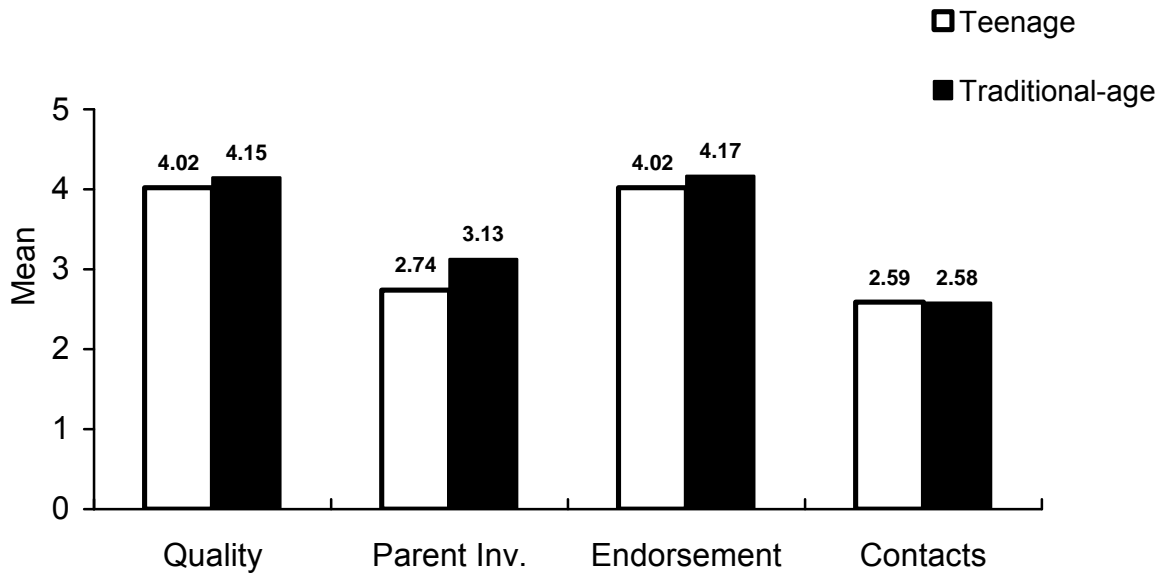
Figure 2. Means of four parent involvement variables for teenage mother group and traditional-age mother group.

The parent involvement variable did have a median size effect of Cohen's *d*, which could indicate some practical significance. The parent involvement variable was composed of questions related to the mother's involvement in their child's activities such as volunteering at the school, attendance at school activities, attendance at parent-teacher conferences, and participation in organizations such as the Parent Teacher Association (PTA). Several studies have documented lower involvement in these types of activities for teenage mothers than for traditional-age mothers (Barth, 1998; Brooks-Gumm & Chase-Lansdale, 1995).

The children of teenage mothers were rated slightly but not statistically significantly lower on measures of school readiness than the children of traditional-age mothers (see Figure 3). However, the physical development variable did have a median size indicating some practical significance. The children of teenage mothers were rated lower on questions related to their physical wellbeing and health by their kindergarten teachers. Physical development is not specifically addressed in the HIPPY program, so perhaps this difference reflects its lack of emphasis.
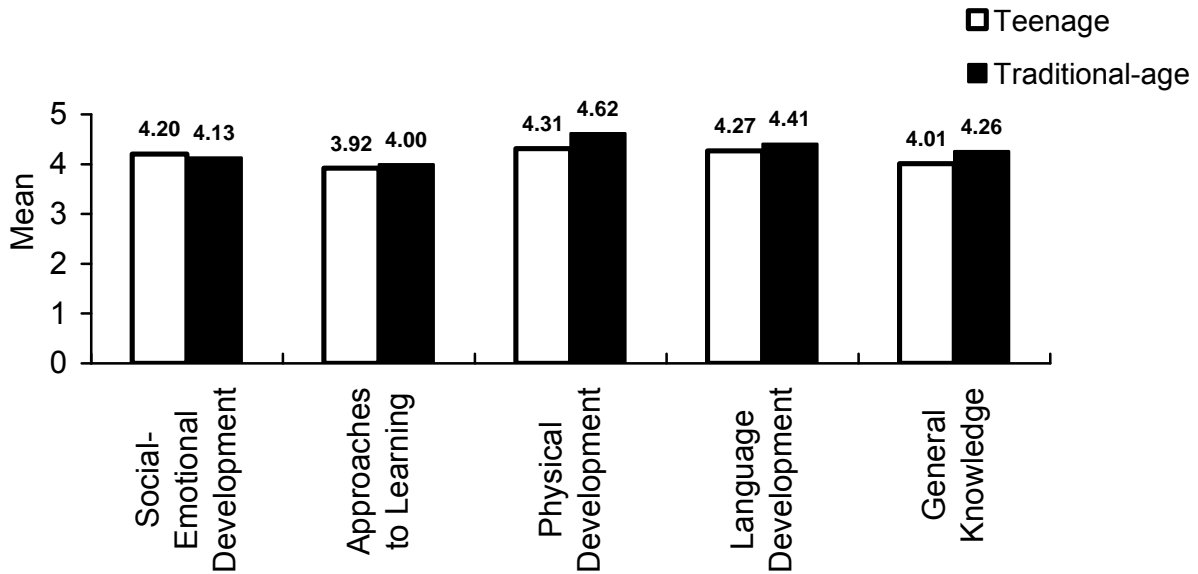
Figure 3. Means of five school readiness variables for teenage mother group and traditional-age mother group.

Question 3 was answered using a chi-square between group membership and literacy skills. The proportion of children from the teenage mother group whose literacy skills were on grade level according to TPRI/Tejas LEE was .72, whereas the proportion from the traditional-age mother group was 1.27. This difference was statistically significant and indicated that the children of traditional-age mothers were almost twice as likely as the children of teenage mothers to have on grade level literacy skills.

DDA analysis revealed that among teenage mothers, the combination of the four parent involvement variables were useful to explain 68% of the variance in whether or not a child would be either on grade level, or not on grade level according to scores on the TPRI/Tejas-LEE. According to the standardized function coefficients and the structure coefficients, teacher-parent contacts was the strongest contributor to the multivariate relationship between the four variables at 13.5%. Comfort and endorsement of school was the second strongest contributor at 9.2%. Parent involvement and quality of relationship both contributed very little to the multivariate relationship at 3.4% and 3.0%, respectively. It should be noted that none of the variables were particularly strong

contributors. Similar DDA analysis for the children of traditional-age mothers did not yield similar results. The combination of the parent involvement variables did not contribute in a statistically significant manner to the discriminating difference between the on grade level and not on grade level groups. The function yielded a small effect size of only 29.1%.

DDA performed to answer Question 4 used the five school readiness variables among teenage mothers and whether or not a child was on grade level, or not on grade level according to scores on the TPRI/Tejas-LEE. The analysis revealed that the combination of school readiness variables could not explain a statistically significant amount of the difference between the literacy groups. The small effect of 22.5% accounted for little of the variance between the groups. The DDA among the children of traditional-age mothers had similar results. A small effect of 20.0% indicated that little of the variance between the on grade level and not on grade level groups could be explained by the school readiness variables.

Qualitative data were obtained using two open-ended questions on the *HIPPY Satisfaction Survey.* The first question asked mothers in both groups about the aspects of the HIPPY program that they felt were particularly beneficial to them or their child. Responses were analyzed using NUD*IST, and four themes emerged: (a) activities that promote academic skills, (b) supporting parenting, (c) relationship with the home visitor, and (d) literacy development. Ninety percent of the responses from the teenage mother group and 88.9% of the responses from the traditional-age mother group fell into the first theme. Forty percent of the responses from the teenage mother group and 11.1% of the responses from the traditional-age mother group fell into the second theme. Ten percent of the responses from the teenage mother group and 88.9% of the responses from the traditional-age mother group fell into the third theme. Finally, 30% percent of the responses from the teenage mother group and 11.1% of the responses from the traditional-age mother group fell into the fourth theme.

The second open-ended question asked mothers in both groups if there was any addition service they felt HIPPY could provide to better support them as their child's first teacher. Responses were analyzed using NUD*IST and four themes emerged: (a) additional academic activities, (b) additional activities to help child learn English, (c) additional educational materials, and (d) nothing, the program is great. Ten percent of the responses from the teenage mother group and none of the responses from the traditional-age mother group fell into the first theme. Twenty percent of the responses from the teenage mother group and none of the responses from the traditional-age mother group fell into the second theme. None of the responses from the teenage mother group and 11.1% of the responses from the traditional-age mother group fell into the third theme. Finally, 90% percent of the responses from the teenage mother group and 88.9% of the responses from the traditional-age mother group fell into the fourth theme.

Discussion of Major Findings

Overall, the results of this study support the theories and research examined in the literature review regarding the literacy skills of the children of teenage mothers and the impact of the HIPPY program on children's school readiness and their parents' involvement. The importance of children's early language experiences, school readiness and parent involvement all coincide with this study. The results of this study also coincide with the current body of HIPPY research and reinforce the HIPPY program's fundamental belief that a young child's education begins in the home. Researchers agree that it is crucial for young children to have meaningful time and attention from their parents, extended family, or other significant adults in their life (BarHava-Monteith et al., 1999; Bradley and Gilkey, 2003; Garcia, 2006; Jacobson, 2003).

School Readiness and Parent Involvement

This study substantiated the results of previous research regarding the HIPPY program's impact on the school readiness and parent involvement of at-risk children. While previous research regarding the potential disadvantages of the children of teenage mothers is well documented in the literature review, children born to teenage mothers in this study performed equally as well on measures of school readiness and parent involvement as the children born to traditional-age mothers (Hofferth and Reid, 2002; Luster & Haddow, 2005; Terry-Humen et al., 2005; Whitman, 2001). The curriculum used by the HIPPY program focuses on supporting parents as their child's first teacher.

Results on both the parent involvement and school readiness measures used in this study indicate that HIPPY children born to teenage mothers were not statistically significantly behind HIPPY children born to traditional-age mothers. These results could be due to the low number of participants which can yield less powerful statistical results. Small sample sizes can lead to a lack of power and less reliable results. Another explanation for these results could be that the intervention provided by the HIPPY program successfully closed the expected gap. Based on the literature on teenage mothers, one could reasonably expect the children of teenage mothers to lag behind the children of traditional-age mothers.

While the results from t-tests did not yield significant results, there was a trend regarding parent involvement and physical development as indicated by the moderate effect sizes. The parent involvement and physical development of the children of teenage mothers were lower than the children of traditional-age mothers. These trends are in-line with the literature regarding the children of teenage mothers. Wong & Checkland (2002) found that the children of teenage mothers had lower parent involvement than the children of traditional-age mothers.

The lower scores on measures of physical development are supported in the literature as well. Teenage mothers are more likely to have a premature birth or low birth weight baby (Levine & Pollack, 2003l; Miedel & Reynolds, 1999; Miller et al., 2003) and smoke during pregnancy than older pregnant women. These complications have been shown to put the child at greater risk for serious and long-term illnesses, developmental delays, and death in the first year of life (Child Trends Data Bank, 2006).

In contrast, there is a body of research which argues that teen childbearing does not appear to harmful for children when controlling for background factors (Levine & Pollack, 2003). Girls who become teenage mothers are typically more disadvantaged than other teenagers, both before and after becoming parents. While teen pregnancy crosscuts all income levels, 85% of teens who give birth are poor or near-poor (Cushman & McNamara, 2004). According to this viewpoint, the lack of significant results could be due to the children born to teenage mothers were at risk due to socio-economic and family characteristics, independent of their mother's age at the time of their birth.

While the children of teenage mothers participating in the HIPPY program performed just as well on measures of parent involvement and school readiness as the children born to traditional-age mothers participating in the same HIPPY programs, qualitative responses to two open-ended questions did reveal some differences. In response to the question, "What aspects of the HIPPY program do you feel were particularly beneficial to you or your child?" four times as many teenage mothers than traditional-age mothers indicated that the support they received as a parent was the most beneficial aspect of the HIPPY program. For example, one teenage mother responded, "I am happy with the program because it has taught me to have more patience with my kids." Another teenage mother said, "Thanks to the HIPPY program I have a good relationship with my child. We are able to communicate and I am able to be a part of her learning." Finally, another teenage parent indicated that, "What I felt

was most beneficial was the fact that when I correct my child I do not say 'no,' instead I ask her questions and explain things."

The evidence in the literature regarding the tendency of teenage mothers to struggle with their parenting skills could explain this finding. Previous research indicates that teenage mothers are often less cognitively prepared for parenting, which translates into less than optimal parenting practices (Brooks-Gunn & Chase-Lansdale, 1995; Miller, et. al, 1996; Sommer, et. al, 1993; Wong & Checkland, 2002). While HIPPY does provide support for parenting through guidance and support provided through the relationship between the home visitor and the parent, these service are ancillary and vary from program to program.

Literacy Skills

The results of this study support the theories and research regarding the literacy skills of children born to teenage mothers. In previous studies, the children of teenage mothers performed significantly lower on tests of literacy skills (O'Callaghan et al., 2001; Terry-Humen, et al., 2005). Despite specific and focused literacy intervention provided by the HIPPY program, the children of teenage mothers were still twice as likely to perform below grade level on a nationally standardized screening of literacy skills. Results of Discriminant Descriptive Analysis (DDA) indicate that the multivariate relationship between the four parent involvement variables explains a large (68%) statistically significant amount of the variance between children's literacy skills being either on level or not on level. Parent-teacher contacts contributed the most to this relationship.

While not statistically significant, results of the odds ratios indicate several interesting trends. Overall, the children of teenage mothers were four times more likely to have on level literacy skills when parent involvement skills were high. In contrast, the children of traditional-age mothers were only twice as likely to have on level literacy skills when parent involvement skills were high. The children of teenage mothers were

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just as likely (50-50 chance) to have on level literacy skills when readiness skills were high. However, the children of traditional-age mothers were 12 times more likely to have on level literacy skills when readiness skills were high. Figure 4 illustrates these findings pictorially.
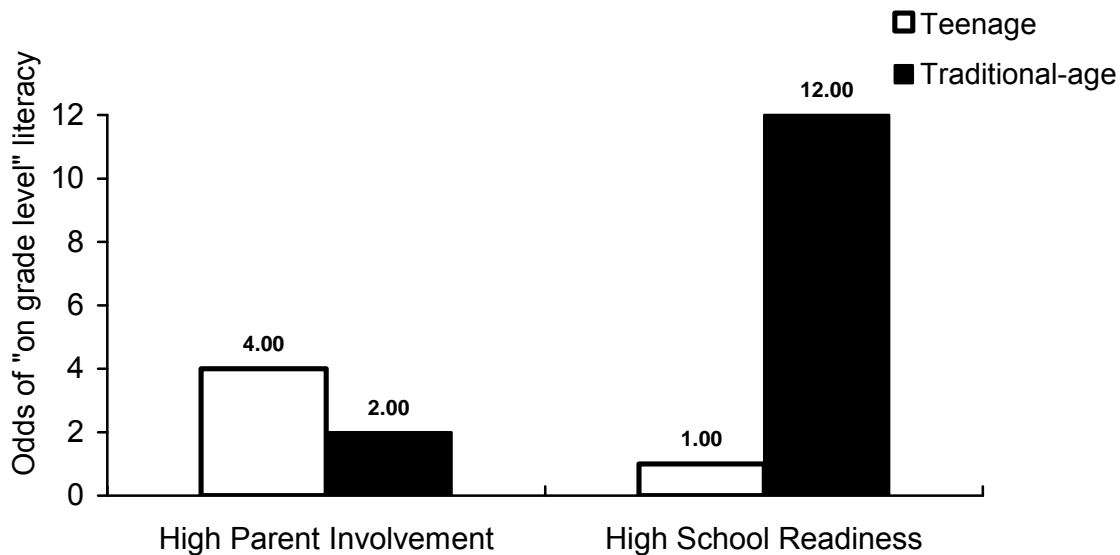

Figure 4. Odds ratios for parent involvement by literacy and school readiness by literacy for teenage mothers and traditional-age mothers.

All of these findings seem to suggest a trend in the impact of parent involvement and school readiness on the literacy skills of the children of teenage mothers versus traditional-age mothers. There is a slight trend towards parent involvement making more of an impact on the literacy skills of the children of teenage mothers. However, there is a significant trend towards school readiness making more of an impact on the literacy skills of the children of traditional-age mothers. This supports research conducted on the effectiveness of teenage mother intervention programs that focus on teaching parenting skills as well as providing social, emotional, and economic support (Brooks-Gunn et al., 2000; Fewell & Wheeden, 1998; Holgate et al., 2006).

Again, responses to the open-ended questions provide insight into these differences in literacy skills. In response to the question, "What aspects of the HIPPY

program do you feel were particularly beneficial to you or your child?" teenage mothers stated three times more often that support for literacy development was the most important aspect of the HIPPY program for their child. One mother responded, "I liked that my child learned letters and how to retain and share information from stories." Another mother responded, "I like that my son is learning both English at school and Spanish at home." Finally, one mother stated, "What I like most about the [HIPPY] program is reading with my child and his attraction to reading."

In response to the question, "Are there any additional services HIPPY could provide that would have better helped you prepare your child for school?" teenage mothers were more likely to respond that they wished there was an even greater emphasis on academic skills such as literacy and math. One mother stated, "I wish that HIPPY would provide more activities that focus on reading and math." So while the HIPPY curriculum provides a daily lesson for parents to complete with their child, teenage mothers often wanted more structured activities. Teenage mothers also indicated more often that they desired additional support in helping their child learn English. One mother responded, "I would like HIPPY to help me be able to help my daughter learn English." Another mother responded, "I wish HIPPY had some activities to teach my child more English."

The findings in regards to the ability of parent involvement scores and school readiness scores to discriminate between those children whose literacy skills were on grade level and those students whose literacy skills were not on grade level were somewhat mixed. For the children of teenage mothers, the combination of the four parent involvement variables were useful in explaining the difference in whether or not a child would be either on grade level, or not on grade level according to scores on the TPRI/Tejas-LEE. Of the four parent involvement variables, teacher-parent contacts was the strongest contributor to this multivariate relationship between the four variables at 13.5%. However, similar analysis for the children of traditional-age mothers did not yield

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similar results. These findings seem to indicate that lower parent involvement scores statistically significantly affect the literacy scores of the children of teenage mothers but do not statistically significantly affect the literacy scores of the children of traditional-age mothers. These mixed results could be due to the likelihood of the children of teenage mothers to have a less enriching home environment in which even slightly lower levels of parent involvement have an affect on the literacy skills of the child (Espinosa, 2007; Klein, 2007; Maxwell & Clifford, 2004; Rhode Island KIDS COUNT, 2005; Welsley & Buysse, 2003). These results could also be due to the small sample size and the low case to variable ratio. Ideally, this ratio should be 20 to 1 in order to obtain reliable results; however, in this study the ration ranged from 4 to 1 to only 2 to 1.

Additional results indicate that the five school readiness variables were not useful in explaining the variance in whether or not a child was on grade level or not on grade level according to scores on the TPRI/Tejas-LEE for either group of mothers. One possible explanation for this finding could be the fact that the school readiness scores were positively skewed and highly correlated with one another. With such a small sample size, this could diminish the possibility of obtaining statistically significant results. These results could also be due to the low case to variable ratio. Ideally, this ratio should be 20 to 1 in order to obtain reliable results; however, in this study the ration ranged from 4 to 1 to only 2 to 1. Another possible explanation for this difference may be household composition. The average age of the teenage mothers in this study was 16.5. Children born to teenage mothers under the age of 18 might be more likely than a child born to an older teenage to live with their mother and other extended family (Terry-Humen et al., 2005). In addition, all of the families in this study were Hispanic, and the majority of them were immigrants for whom living in multigenerational housing situations is not uncommon. These children may benefit developmentally from having an older adult in the home. So while the teenage mother may struggle to provide a

linguistically, enriching home environment for her child, other adults in the home may be capable of doing so.

In spite of mixed findings regarding the impact of the HIPPY program on the children of teenage mothers, this study did reinforce the findings of other studies that showed that parents want the best education for their children (Henderson & Mapp, 2002). This study showed that the intervention provided by the HIPPY program can help teenage mothers close the academic gap between their children and the children of traditional-age mothers. Parents in the HIPPY program are taught how to increase their child's ability to start school ready to learn. The results of this study show that the children of teenage mothers in the HIPPY program are just as prepared to enter school ready to learn as the children of traditional-age mothers in the same HIPPY program. While there were differences in literacy skills, teenage mothers indicated their desire to for more support for their children in this area.

<div align="center">Implications for Practice</div>

During the past several decades the American public has begun to recognize the importance of the first few years in a child's life and the impact their earliest experiences have on future success. However, children from low-income, single-parent, and minority families are more likely to start school with limited language skills, health problems, and social and emotional problems that interfere with learning (O'Callaghan et al., 2001; Terry-Humen et al, 2005). This fact coupled with research on the importance of school readiness and parent involvement on a child's future academic success has prompted a wide range of early childhood programs and initiatives. National policy, specifically NCLB (U.S. Congress, 2002), now require schools to support and educate parents as well as include them in every aspect of their child's education. Schools who fail to do so not only marginalize are large portion of children, but face serious consequences from the state and national departments of education.

Schools across the country are looking for strong early childhood programs that focus on increasing the school readiness and parent involvement for at-risk children. In doing so, it is important for these educators to not overlook the unique needs of one of the nation's most at-risk populations, the children born to teenage mothers. Teenage mothers are more likely than other young women to drop out of school, live in poverty, remain single, have less than optimal parenting skills, and in Texas specifically be a minority (Lopez-Turley, 2003; Maynard, 1997; Moore et al., 1997). In addition, the children born to teenage mothers are at a greater risk for low school readiness (Levine & Pollack, 2003).

There are a reported 400,000 children born to teenage mothers every year in the United States (Hoffman, 2006). In Texas alone, there were a reported 52,361 births to teenagers in 2004. The Texas, the teenage birth rate in 2004 was 62.6 per 1000 girls ages 15-19, the highest in the nation. In addition to the social costs discussed in the literature review, the monetary cost to taxpayers in Texas associated with teenage childbearing is estimated to be at least $1 billion dollars a year. The most significant of these costs are associated with the poorer outcomes for the children of teenage mothers as compared to children born to traditional-age mothers. While efforts to prevent teenage pregnancy are important, efforts to minimize the educational disadvantages for the children of teenage mothers is equally important. Early childhood programs, such as HIPPY, can empower teenage mothers to be their child's first teacher and remain an engaged and knowledgeable partner in their child's education.

The children born to teenage mothers in this study performed equally as well on measures of school readiness and parent involvement as the children born to traditional-age mothers. Based on the current research, one could reasonably expect there to be a statistically significant difference between the children of teenage mothers and the children of traditional-age mothers, but such was not the case in this study. This suggests that the curriculum used by the HIPPY program assisted parents in becoming

involved in the preparation of their child for school. Educators and stakeholders would be wise to implement programs such as HIPPY as a part of their pregnant and parenting teenage program in their district if they want to help the children of teenage mothers overcome the disadvantage of the circumstances of their birth.

In addition, more HIPPY programs should strive to collaborate specifically with the pregnant and parenting teenage programs in the districts they serve. In doing so, HIPPY could offer services focused more directly on the needs of teenage mothers and their children. While the children in this study performed well on measures of school readiness and parent involvement, they were twice as likely to perform below grade level on a nationally standardized screening of literacy skills in kindergarten. However, teenage mothers in the study indicated through open-ended questions that they would welcome additional support for them to help their children in the areas of literacy and learning English.

By implementing a curriculum tailored to teenage mothers, HIPPY could extend their mission of empowering parents to be their child's first teacher to a sometimes overlooked population of children. Many parenting programs such as Parents as Teachers, Head Start, Early Head Start, and Mothers of Preschoolers offer curriculum and services designed to specifically meet the needs of teenage parents. Based on the results of this study, a HIPPY model specifically focused on teenage parents should include the following components:

1. Additional curriculum activities to support the child's literacy skills.
2. Focus on the role of the home visitor as a mentor and a link to community services such as healthcare and job training.
3. Targeted development of positive parenting skills.

Educators must keep in mind that it is not only important for children to come to school ready to learn, but it is equally important for schools to be ready for these children. Staff development for teachers should include topics that address the unique

needs of the children of teenage mothers as well as how to cultivate a strong and trusting relationship with teenage parents. With better relationships, teachers can more effectively assist young parents in becoming better parents and first teachers of their young children. Equally important is for elementary administrators and staff to have a full knowledge of the district's early childhood programs. Only by having this knowledge will they be able to foster encouragement and sustain the parent involvement engrained in the HIPPY parents during the preschool years.

In order to implement a HIPPY program, adequate funding is needed. Funding is a universal problem in education. NCLB (U.S. Congress, 2002) has provisions for engaging families that schools and districts are required to observe. The new Title I provisions under NCLB (U.S. Congress, 2002) make it possible for the HIPPY program to be financed with Title I funds. By extending the targeted population of the HIPPY program to include teenage mothers, additional funding might be obtained through the Temporary Assistance for Needy Families (TANF) funds, Parent and Parenting Teen (PPT) funds from the state Department of Education, County Departments of Health and Human Services and a number of private agencies whose mission is to reduce the occurrence and cost of teenage pregnancy.

Recommendations for Further Study

This study provided a baseline for future research of the impact of early intervention programs like the HIPPY program on the children of teenage mothers. The following are presented as suggestions for future research:

1. Repeat the current study on a larger scale incorporating HIPPY programs from other states in order to obtain a larger sample size.
2. Include the child's home environment through measures such as the Home Observation for Measurement of the Environment (HOME) in the study.
3. Design a study using a control group of children born to teenage mothers from the waiting list of the HIPPY programs.

4. Design a study with benchmarks that measure the skill levels of children born to teenage mothers and the children born to traditional-age children before the HIPPY intervention as well as at kindergarten entry.

5. Design a study that measures the characteristics of the mother that are known to impact student achievement such as parenting skills, depression, home environment, and parent involvement.

6. Design a study that follows a group of teenage mothers in the HIPPY program and a control group not in the HIPPY program for several years and measures attendance and disciplinary referrals in addition to academic achievement.

7. Design a study using focus groups to gain further insight into the impact of the HIPPY program on the children of teenage mothers.

8. Design a study using narrative analysis of journals or blogs of the home visitor and mother to examine the relationship between the home visitor and the parent.

9. Design a study to examine the discourse patterns between home visitors and teenage mothers as compared with traditional-age mothers.

10. Design a study using interviews to explore teacher bias regarding expectations of children born to teenage mothers versus children born to traditional-age mothers.

Any study of school readiness must acknowledge that it is not the sole responsibility of the child or parent. According to the NAEYC (2004), it is the responsibility of families, schools, and communities to work together to meet the needs of children as they enter school and to provide whatever services are needed to help each child reach his or her fullest potential. The HIPPY program strives to link parents, schools, and communities together to help children overcome the cycle of poverty and achieve academic success. Finally, any study of the children of teenage mothers must acknowledge the unique cognitive, emotional, and psychological needs of teenage mothers.

Conclusion

In conclusion, this study examined the differences between teenage mothers and traditional-age mothers who participated in the HIPPY early intervention program. HIPPY addresses parent involvement and school readiness of at-risk children. While HIPPY has made significant advances in these areas, researchers have yet to examine HIPPY's effect on the school readiness of one of the most at-risk populations, children of teenage mothers.

In spite of mixed findings regarding the impact of the HIPPY program on the children of teenage mothers, this study does reinforce the findings of other studies that show that parents want the best education for their children (Henderson & Mapp, 2002). The findings suggest that the intervention provided by the HIPPY program can help teenage mothers close the gap between their children and the children of traditional-age mothers. Parents in the HIPPY program are taught how to increase their child's ability to start school ready to learn. The children of teenage mothers in this study scored similarly on measures of school readiness and parent involvement as the children of traditional-age mothers in the same HIPPY programs. While there were differences in literacy skills, teenage mothers indicated their desire to have more support for their children in this area.

APPENDIX A

KINDERGARTEN READINESS SURVEY

Please enter the child's ID number from the letter sent to you about this project.

For each of the following items, indicate how often you observe the child behave in this way or demonstrate this skill. Choose one response for each item. Please do not skip any items. If you have not seen the child display a certain characteristic or skill, please take the time to carefully observe her in the next day or two. You may want to specifically set up a meaningful activity to elicit the skill or characteristic. For example, to see if the child can recognize his name in print, ask the child to pick her name card to place on the Helper Chart.

Social-Emotional Development

	Never	Rarely	Sometimes	Often	Always
1. Is accepted and liked by other children.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
2. Makes friends easily.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
3. Is disruptive to others in class.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
4. Shares toys and other belongings with other children.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
5. Has temper outbursts or tantrums.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
6. Is sensitive to others children's feelings.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
7. Pays attention/listens during group discussion or stories.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
8. Is able to follow directions.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
9. Expresses emotions through appropriate actions and words.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
10. Uses problem-solving skills in social situations.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
11. Uses adults as resources. (Ex. asks questions, requests materials)	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
12. Works cooperatively with others in a give-and-take manner.	❏	❏	❏	❏	❏

Approaches to Learning

	Never	Rarely	Sometimes	Often	Always
13. Is enthusiastic and curious in approaching new activities.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
14. Shows pride in accomplishments.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
15. Copes with frustration and failure.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
16. Talks about what he is learning.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
17. Exhibits patience and persists with tasks.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
18. Is an active learner seeking out new learning materials and situations.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
19. Has difficulty concentrating or staying on task.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
20. Can work or play without the need for adult direction.	❏	❏	❏	❏	❏

Physical Development

	Never	Rarely	Sometimes	Often	Always
21. Demonstrates age-appropriate gross motor skills (Ex. Running, jumping, skipping, climbing stairs)	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
22. Demonstrates age-appropriate fine motor skills. (Ex. Using scissors, holding pencil)	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
23. Is physically healthy.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
24. Comes to school well rested, feed, and alert.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
25. Practices personal hygiene. (Ex. Washes hands after using toilet and before eating)	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Very Often
26. Demonstrates self-help skills such as putting on coat and toileting independently.	❏	❏	❏	❏	❏

Language Development/Communication Skills

	Never	Rarely	Sometimes	Often	Always
27. Responds to questions.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
28. Shows interest in books and print.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
29. Reads environmental print (Ex. logos, signs).	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
30. Recognizes that written spellings represent spoken words.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
31. Scribbles with intended meaning.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
32. Identifies letters in the alphabet.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
33. Recognizes first name in print.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
34. Uses multiple words, sentences, or phrases to express ideas, feelings, and actions	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
35. Shows familiarity with how books work. (Ex. Holds books right side up, turns pages front to back)	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
36. Understands and interprets a story or other text read to her. (Ex. retelling a story, connecting a story to his or her life)	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
37. Predicts what will happen next in stories using pictures and storyline for clues.	❏	❏	❏	❏	❏

General Knowledge

	Never	Rarely	Sometimes	Often	Always
38. Knows how to contact an adult family member. (Ex. knows a parent's home or work number).	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
39. Knows age.	❏	❏	❏	❏	❏

	Never	Rarely	Sometimes	Often	Always
40. Knows birth date.	❑	❑	❑	❑	❑

	Never	Rarely	Sometimes	Often	Always
41. Recognizes basic shapes.	❑	❑	❑	❑	❑

	Never	Rarely	Sometimes	Often	Always
42. Identifies basic colors.	❑	❑	❑	❑	❑

	Never	Rarely	Sometimes	Often	Always
43. Counts by rote to 10.	❑	❑	❑	❑	❑

	Never	Rarely	Sometimes	Often	Always
44. Is able to sort and classify objects.	❑	❑	❑	❑	❑

	Never	Rarely	Sometimes	Often	Always
45. Knows name of some numerals. (Ex. "2" is called "two")	❑	❑	❑	❑	❑

APPENDIX B

PARENT AND TEACHER INVOLVEMENT – TEACHER VERSION

Please enter the child's ID number from the letter sent to you about this project.

Please answer the following questions about your relationship with this student's parents and their involvement with the school.

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
1. How often has this child's parent called you this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
2. How often have you called this child's parent this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
3. How often has this child's parent written you a note this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
4. How often have you written you a note to this child's parent this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
5. How often has this child's parent stopped by to talk to you this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
6. How often has this child's parent been invited to attend a parent-teacher conference this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
7. How often has this child's parent visited your school for a special event (e.g. open house) this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
8. How often has this child's parent been invited to attend a parent-teacher conference this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
9. How often has this child's parent attended a parent-teacher conference this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
10. How often has this child's parent been invited to attend PTA meetings this school year?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
11. How often has this child's parent been to PTA meetings this school year?	❏	❏	❏	❏	❏

	Not at All	A Little	Somewhat	Interested	Very Interested
12. How much is this parent interested in getting to know you?	❏	❏	❏	❏	❏

	Not at All	A Little	Somewhat	Interested	Very Interested
13. How well do you feel you can talk to and be heard by this parent?	❏	❏	❏	❏	❏

	Not at All	A Little	Somewhat	Interested	Very Interested
14. If you had a problem with this child, how comfortable would you feel talking to his/her parent about it?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
15. How often does this parent ask questions or make suggestions about his/her child?	❏	❏	❏	❏	❏

	Not at All	A Little	Somewhat	Interested	Very Interested
16. How much do you feel this parent has the same goals for his/her child that the school does?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
17. How often does this parent send things to class like story books or objects?	❏	❏	❏	❏	❏

	Not at All	A Little	Somewhat	Interested	Very Interested
18. To the best of your knowledge, how much does this parent do things to encourage this child's positive attitude towards education (e.g., take him/her to the library, play games to teach child new things, read to him/her, help him/her make up work after being absent)?	❏	❏	❏	❏	❏

	Never	Once or twice a year	Almost every month	Almost every week	More than once per week
19. How often does this parent volunteer at school?	❏	❏	❏	❏	❏

	Not at All	A Little	Somewhat	Interested	Very Interested
20. How involved is this parent in his/her child's education and school life?	❏	❏	❏	❏	❏

	Not at All	A Little	Somewhat	Interested	Very Interested
21. How important is education in this family?	❏	❏	❏	❏	❏

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APPENDIX C

PARENT AND TEACHER INVOLVEMENT – PARENT VERSION

PARENT AND TEACHER INVOLVEMENT

We would like some information about your relationship with your child's school teacher and your involvement in your child's school life. Please circle the number that best completes each statement.

	Twice a Year	Every Month	Every Week	Once Per Week	Never
1. In this school year, you have called your child's teacher	1	2	3	4	5
2. In this school year, your child's teacher has called you	1	2	3	4	5
3. In this school year, you have written your child's teacher	1	2	3	4	5
4. In this school year, your child's teacher has written you	1	2	3	4	5
5. In this school year, you stopped by to talk to your child's teacher	1	2	3	4	5
6. In this school year, you have been invited to your child's school for a special event (such as a book fair)	1	2	3	4	5
7. In this school year, you have visited your child's school for a special event (such as a book fair)	1	2	3	4	5
8. In this school year, you have been invited to attend a parent-teacher conference	1	2	3	4	5
9. In this school year, you have attended a parent-teacher conference	1	2	3	4	5
10. In this school year, you have attended PTA meetings	1	2	3	4	5

	Not At All	A Little	Some	A Lot	A Great Deal
11. You feel welcome to visit your child's school	1	2	3	4	5
12. You enjoy talking with your child's teacher	1	2	3	4	5
13. You feel your child's teacher cares about your child	1	2	3	4	5
14. You think your child's teacher is interested in getting to know you	1	2	3	4	5
15. You feel comfortable talking with your child's teacher about your child	1	2	3	4	5

16. You feel your child's teacher pays attention
to your suggestions . . . . .1 . . . . . . .2 . . . . . .3 . . . . . .4 5

17. You ask your child's teacher questions or
make suggestions about your child.. . . . . .1 . . . . . . .2 . . . . . .3 . . . . . .4 5

18. You send things to class like story books and
other things. . . . . 1 . . . . . . .2 . . . . . .3 . . . . . .4 5

19. You read to your child. . . . . 1 . . . . . . .2 . . . . . .3 . . . . . .4 5

20. You take your child to the library. .1 . . . . . . .2 . . . . . .3 . . . . . .4 5

21. You play games at home with your child to teach
him/her new things.. . . . . 1 . . . . . . .2 . . . . . .3 . . . . . .4 5

22. You volunteer at your child's school.. . . . . 1 . . . . . . .2 . . . . . .3 . . . . . .4 5

	Strongly Disagree	Not Disagree	Strongly Sure	Agree	Agree

23. Your child's school is a good place for your child to be. . . . .1 . . . . . . .2 . . . . . .3 . . . . . .4 5

24. The staff at your child's school is doing good
things for your child . . . . .1 . . . . . . .2 . . . . . .3 . . . . . .4 5

25. You have confidence in the people at your child's school. . . 1 . . . . . . .2 . . . . . .3 . . . . . .4 5

26. Your child's school is doing a good job of preparing
children for their futures. . . . . 1 . . . . . . .2 . . . . . .3 . . . . . .4 5

Conduct Problems Prevention Research Group. (1991b). Parent and Teacher Involvement Measure - Parent Retrieved June 13, 2007, from www.fasttrackproject.org

APPENDIX D

HIPPY SATISFACTION SURVEY

Child ID # _____ **Home Instructor** _____ **City**_____

HIPPY Satisfaction Interview Protocol Form

Parent Interview Protocol

INTRODUCTION

For your information, only researchers on the project will have access to the tapes and the tapes will be eventually destroyed after they are transcribed.

QUESTIONS

Consider how helpful HIPPY may have been in helping you get your child ready for school. On a scale from 1 to 10, with 10 being the most helpful, rate how satisfied you were with the following benefits HIPPY may have provided.

    a) The academic skills presented in the Activity Packs…….…......1 2 3 4 5 6 7 8 9 10

    b) Role-playing the activities with the Home Instructor…….…....1 2 3 4 5 6 7 8 9 10

    c) Reviewing your child's progress with the Home Instructor……1 2 3 4 5 6 7 8 9 10

    d) Specific instruction on being your child's first teacher…………1 2 3 4 5 6 7 8 9 10

    e) Information presented at group meetings………………………1 2 3 4 5 6 7 8 9 10

    f) Friendships formed with other HIPPY families…………………1 2 3 4 5 6 7 8 9 10

    g) Involvement of other family members in HIPPY activities…….1 2 3 4 5 6 7 8 9 10

    h) Involvement of other family members in other activities

        such as field trips, celebrations, etc.……………………….…..1 2 3 4 5 6 7 8 9 10

    i) Encouragement and instruction on the importance of being

       involved with your child's school………………………………1 2 3 4 5 6 7 8 9 10

    j) Referrals by Home Instructor, or other HIPPY staff members,

       to resources in the community such as healthcare & nutrition

       services……………………………………………………….…..1 2 3 4 5 6 7 8 9 10

k) Referrals by Home Instructor, or other HIPPY staff members,

to economic assistance or job training…………………………..1 2 3 4 5 6 7 8 9 10

l) Information and support regarding parenting issues…………..1 2 3 4 5 6 7 8 9 10

m) Information and support regarding child development………...1 2 3 4 5 6 7 8 9 10

PROBE 1

What aspects of the HIPPY Program do you feel were particularly beneficial to you or

your child?

PROBE 2

Are there any additional services HIPPY could provide that would have better helped

you prepare your child for school?

APPENDIX E

INFORMED CONSENT – PARENTS

University of North Texas Institutional Review Board
Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: Children of Teenage Mothers: School Readiness Outcomes and Predictors of School Success

Principal Investigator: Amber L. Brown, a graduate student in the University of North Texas (UNT) Department of Early Childhood Education.

Purpose of the Study: You are being asked to participate in a research study which will attempt to determine if the there is a difference in the school readiness of` the children of teen mothers in the Home Instruction for Parents of Preschool Youngsters (HIPPY) program versus the children of traditional-age mothers in the HIPPY program.

Study Procedures: You will be asked to complete two short surveys about your involvement with your child's teacher and your satisfaction with the HIPPY program that will take about 15 minutes of your time. The Principal Investigator, Amber Brown another researcher will give you the survey. In addition you are asked to give permission for your child's teacher to complete a survey at school about your child as well.

Foreseeable Risks: There are no foreseeable risks associated with this study.

Benefits to the Subjects or Others: The results of this study will be used to guide curriculum decisions of the HIPPY program in regards to the children of teenage mothers. Adapting the HIPPY curriculum to meet the needs of these children increases their chance of entering school ready to learn and future academic success. This study may also have implications on policy involving intervention programs aimed at the children of teenage mothers.

Procedures for Maintaining Confidentiality of Research Records: Personal information will not be requested other than basic demographic data. Each child in the HIPPY program is assigned an ID number which will be used on all data instruments. The master list of ID numbers and names will be seen by the primary researcher only and kept in a locked file cabinet in a separate location from the heard copies and data files containing participant scores on the study instruments. Coded data will not at any time be associated with individual or groups of responses. The confidentiality of participant and family information will be maintained in any publications or presentations regarding this study.

Questions about the Study: If you have any questions about the study, you may contact **Amber Brown** at telephone number **940-369-8743** or the faculty advisor,

Dr. George Morrison, UNT Department of Early Childhood Education, at telephone number **940-565-4476.**

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants' Rights: Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

- *Amber Brown* has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.

- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.

- You understand why the study is being conducted and how it will be performed.

- You understand your rights as a research participant and you voluntarily consent to participate in this study.

- You have been told you will receive a copy of this form.

_____
Printed Name of Participant

_____   _____
Signature of Participant   Date

For the principal investigator: I certify that I have reviewed the contents of this form with the participant signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

_____   _____
Signature of Principal Investigator   Date

APPENDIX F

LETTER TO KINDERGARTEN TEACHERS

<div align="right">February 18, 2008</div>

Dear Teacher

My name is Amber Brown and I am a graduate student in the Teacher Education Department at the University of North Texas. I am conducting a study about the School Readiness of Kindergarten students. Your input is needed regarding the school readiness and parent involvement of the child(ren) listed below.

In order to complete the surveys, follow the links below. The child's parent or guardian has given us the consent to obtain this information as well as your area school superintendent and principal.

Each survey should take less than 10 minutes for each child. All information will be kept strictly confidential and will only be used for research purposes in statistical summaries. You are free to skip any questions that you are unable to or do not wish to answer.

As a small compensation for your time, you will receive via e-mail a $10 gift certificate to Teaching Stuff (an online teaching supply store) for each child for whom you complete both surveys by **March 7, 2008**.

If you have any questions about the study, please contact Amber Brown via email at abrown@coe.unt.edu, or phone (817) 455-6561. I truly appreciate your time and cooperation.

Sincerely,

Amber L. Brown, M. S.
University of North Texas

SURVEY LINKS:

School Readiness Survey-
http://www.questionpro.com/akira/TakeSurvey?id=689872

Parent Involvement Survey -
http://www.questionpro.com/akira/TakeSurvey?id=728706

Follow the links to the surveys. The first question will ask for you the child's ID number. Please enter the number listed in this letter.

CHILD   **ID Number**

APPENDIX G

IMPLIED CONSENT - TEACHERS

Hello:

My name is Amber Brown and I am a graduate student in the Counseling, Higher Education, and Early Childhood Education Department at the University of North Texas. I am conducting a study about the School Readiness of Kindergarten students. Please complete the following survey on the selected children in your classroom.

The first question of the survey will ask you to enter the child's ID number. This is the ID number found on the letter given to you by your principal and found in my e-mail to you. As stated in the letter and email, the child's parent or guardian has given me the consent to obtain this information.

I would appreciate it if you would complete this questionnaire which will take no longer than 10 minutes for each child. All information will be kept strictly confidential and used for research purposes and in statistical summaries. You are free to skip any questions that you are unable to or do not wish to answer. This survey is voluntary and you may withdraw your participation at any time by simply leaving the website.

Your area school superintendent and your school principal have approved this Parent Teacher Involvement Survey. If you have any questions, please contact Amber Brown via email, abrown@coe.unt.edu, phone (940) 369-8743, or fax (940)369-7955; or the faculty advisor, Dr. Morrison, UNT Department of Counseling, Higher Education, & Early Childhood Education, at telephone number 940-565-4476. Please contact the UNT IRB at 940-565-3940 with any questions regarding your rights as a research subject.

I greatly appreciate your time and cooperation in this project. Please start with the survey now by clicking on the Continue button below. Continue button below.

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