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Effects of Parent Implemented Intervention
On The Academic Readiness Skills
of Hispanic Kindergarten Children

Amelia Lopez

Lehigh University

Presented to the Graduate and Research Committee
of Lehigh University
in Candidacy for the Degree of
Doctor of Philosophy
in School Psychology

Lehigh University

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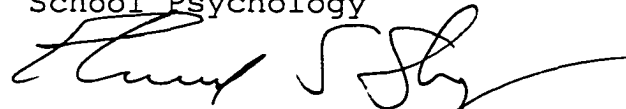
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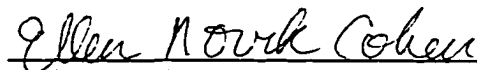

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This work is dedicated to all
mothers who love their children
and to
my husband Wilfredo Lopez
and my son Julian Lopez

Abstract

Parental involvement in children's education has been associated with improvements in academic achievement and in non academic behaviors such as attendance, attitudes about school, and self concept. Despite documented benefits of parental involvement, Hispanic parents have been found to be less involved with their children's education and to perceive more barriers to involvement than other ethnic groups. The present study evaluated the effects of an academic intervention implemented by Hispanic parents on the academic behaviors of their kindergarten child. Collateral effects on parents and children were also be examined. A multiple-probe design across subjects was used to evaluate the effects of a parent-implemented "drill sandwich" procedure on the reading and math readiness skills of six Hispanic children. Results showed that a: parents did implement the intervention; b: all children made substantial gains in letter and number recognition; and improvements were seen in collateral measures (i.e., parental attitudes towards teachers, classroom behaviors, and self-esteem). Treatment acceptability feedback from students and parents was positive. Incidental findings also indicated that children's and parents behaviors deteriorated over the course of the study. Implications for future

research and practice are discussed.

Chapter I

Statement of the Problem

Demographic studies indicate that Hispanics represent the fastest growing minority in the country. It has been predicted that by the year 2000, more than one in three Americans will be Hispanic (Hodgkinson, 1985). As the number of Hispanic children increases, unique challenges are presented to the nation's schools (Huang, & Gibbs 1992). The majority of these children bring into the educational system a different language and culture than that of the mainstream population.

Hispanics represent the poorest and least well educated of all minority groups in the United States (Hodgkinson, 1985). This means that Hispanic children are at risk for academic underachievement. For example, in the Commonwealth of Pennsylvania, almost half of Hispanic children drop out of school each year and 59% are identified as being in need of remediation. In addition, Hispanic children are over represented in special education classes in 45% of the school districts in Pennsylvania (Anliott, 1991). Nationally, only 44% of Mexican-Americans and 53% of Puerto Ricans 25 years and older have completed high school (Hodgkinson, 1985; Huang & Gibbs, 1992; Nicolau & Ramos, 1990). These statistics provide evidence that the Hispanic

child in the American educational system is at risk for academic underachievement, special education identification, and dropping out of school (Anliott, 1991; Hodgkinson, 1985; Huang & Gibbs, 1992).

Although it is difficult to identify with certainty all the factors related to underachievement among Hispanics, one variable that has been identified as important in promoting children's achievement is parental involvement. Parental involvement, broadly defined, includes a variety of activities which allow parents to participate in the educational process at home or at school (Christenson, Rounds, & Franklin, 1992a; Christenson, Rounds, & Gorney 1992b). However there are several different types of parental involvement. Epstein (1987) offers a well-researched classification of the types of parent involvement that characterize school's efforts to share responsibilities with families for the education of their children and outlines five types of parent involvement programs. These include: a) education programs for parents (designed to support parents in meeting their basic obligation as parents); b) communication with parents (about children's progress, school functions, conferences; c) involvement at school (participation at school, volunteer participation, fund raising activities, attendance at school

performances; d) involvement in decision making (refers to participatory roles in Parent Teacher Organizations or advisory councils; and e) involvement in learning activities (help from parents with a specific skill) (Epstein, 1987). Generally, a strong positive relationship exists between student achievement and all types of parental involvement (Christenson et al., 1992a; Christenson et al., 1992b; Henderson, 1987).

There are several other important findings concerning parental involvement. First, regardless of parents' educational level, ethnic background, or income level, most parents report they want their children to succeed in school although they do not know how to help their children. A second finding suggests that parents are involved to a greater extent when they view their participation as directly linked to the achievement of their children. Finally, teacher efforts to involve parents are more influential on parents' actual involvement than parents education and income level (Christenson et al., 1992a; Christenson et al., 1992d; Henderson, 1987).

There are obvious benefits for everyone when parents are involved in the educational process. Generally, parental involvement produces more successful educational programs and more effective schools (Christenson et al.,

1992a; Christenson et al., 1992b; Henderson, 1987). Also, parental involvement enhances the climate of schools (Haynes, Hamilton-Lee, & Hamilton-Lee, 1989). The effects of parental involvement go beyond short term gains.

In addition to achievement, parental involvement is believed to have positive effects on non-academic behaviors such as student attendance, attitudes about school, self-concept, and classroom behaviors (Christenson et al., 1992a; Henderson, 1987). Although most of the research which has investigated the collateral benefits of parent involvement has been correlational in nature, consistently it has been reported that parent involvement is positively associated with non-academic outcomes such as school adjustment, student self competence classroom behaviors and self-esteem (Astone & McLanahan, 1991; Grolnick & Ryan, 1989; Keith, Reimers, Fehrman, Pottebaum, & Aubey, 1986; Reynolds, 1989; Reynolds, 1992; Reynolds & Bezruczko 1993; Reynolds, Wiessberg, & Kaspro 1992; Taylor and Machida 1994).

Despite the strong research support for parental involvement, studies have found that Hispanic parents are significantly less involved in their children's education than African-American and Anglo parents (Klimes-Dougan, Lopez, Nelson, & Aldeman, 1992; Lynch & Stein, 1987; Stevenson, Chen, & Uttal, 1990). Studies which have

assessed the level of involvement among Hispanic parents have found that generally all parents reported positive attitudes toward school involvement (Klimes-Dougan et al., 1992; Stevenson et al., 1990). Hispanic parents, however, reported more barriers to involvement than the non-Hispanic group, and non-English speaking parents reported more barriers than English speaking Hispanic parents. A caution regarding the Klimes-Dougan et al. (1992) and Lynch and Stein (1987) studies is that the participants in these studies were predominantly Mexican-Americans living on the west coast and results may not be generalizable to other Hispanic populations. Also, they did not conduct a comprehensive assessment of other family factors which are associated with achievement as reported by Christenson et al., 1992b).

Although low levels of involvement among Hispanic parents is interpreted by some as reflecting a lack of caring for their children's education (Edwards, 1990), a more accurate interpretation may be that these parents do not know how to help their children. Hispanic parents like many other parents may need direction on how to help their children succeed in school including specific instructional techniques they can use at home (Christenson et al., 1992b; Goldenberg, 1989; Nicolau & Ramos, 1990; Rosado & Aaron,

1991; Soto, 1986).

It has been well documented in the research literature that parents can be effective intervention agents and home tutors, and can implement a variety of procedures. Flash card drill procedures (Koven & LeBow, 1973) listening to the child read and assisting with unknown words (Hannon, 1987; Morgan, & Lyon, 1978; Tizzard, Schoefield & Hewison, 1982; Thurston & Dasta, 1990), and assisting with homework (Shuck, Ulsh & Platt, 1983) are among the strategies that have been successfully used by parents. However, many of these studies lacked experimental rigor, making it difficult to determine if changes can be attributed to the actual intervention. For, example while some studies reported data on treatment integrity, others did not. In addition, only one researcher evaluated the effects of parental involvement with Hispanic families (e.g., Goldenberg, 1989), and these studies lacked experimental control. Unfortunately, the parental involvement research and the research which has utilized parents as specific intervention agents, does not provide evidence to support the value of specific techniques over others, even with non-Hispanic parents. Although all these studies provide support for different types parent-implemented interventions, it is difficult to determine which types of intervention have the greatest and fastest

impact on the academic achievement of the child, and which are feasible and practical for parents to implement.

One academic intervention procedure that is easy to use and has been shown to enhance academic skills when used by education personnel is a "drill sandwich" technique (Gickling & Thompson, 1985). The procedure is based on Curriculum-Based Assessment of Instructional Design (CBA-ID) and its main aspect is control of task difficulty (CBA-ID). The model stresses that learning of new information is best achieved when its presentation is embedded within the context of known material, so the ratios of known to unknown material must be carefully controlled. For drill instruction, the recommended ratios are 70-85% known material and 15-30% unknown material (Gickling & Thompson, 1985). A study conducted by Lopez and Cole (submitted), investigated the effects of a parent implemented drill sandwich procedure on the reading readiness skills of five Puerto Rican kindergarten children. In this study the children were taught letters of the alphabet by their mother/guardian using the recommended ratios of known to unknown. Results of this study showed that the mother/guardian were successful in teaching their children and all of the children made marked improvements in the numbers of learned letters and their letter naming rate.

Social validity data indicated that the adults participating in the study found the procedure easy to implement and that it had impact on the academic achievement of their child. Anecdotal information collected from teachers and parents indicated that all the children appeared to improve their classroom behaviors. The children in the study had increased knowledge of one aspect of the kindergarten curriculum (letters of the alphabet), thus their classroom participation and academic engagement, as well as academic self-esteem appear to have improved. Parents/guardians reported anecdotally that they felt more positive than previously about school and about being involved with their child's schooling, and felt more capable of helping their child.

The purpose of the present study was to extend the previous study and evaluate the effects of a parent-implemented intervention on the reading and math readiness of Hispanic kindergarten children. In addition, the collateral benefits of this parental involvement on both children and parents were assessed. More specifically, the present study attempted to expand on the parental involvement literature by involving Hispanic parents in the implementation of a drill sandwich procedure at home. A multiple-probe design across subjects was used to evaluate

the effects of the parent-implemented drill sandwich procedure on the number of learned letters and the number of learned numbers. This study added to previous research by evaluating the collateral effects of parental involvement on children's non-academic behaviors. Measures of self-esteem, attitudes towards school, and direct observations of specific classroom behaviors were conducted before and after the intervention. Parent's attitudes about school and parental involvement measures were also obtained at the beginning and end of the study to evaluate collateral effects on parents.

Specifically, this investigation addressed the following research questions with the associated hypotheses:

1.a. Given specific training will Hispanic parents implement a drill procedure accurately (at least 80% agreement)?

It was hypothesized that Hispanic parents would implement an academic intervention accurately (at least 80% agreement).

1.b. Given specific training will Hispanic parents implement the intervention consistently (at least three times each week) with their kindergarten child?

It was hypothesized that Hispanic parents would implement the intervention consistently (at least three

times each week).

2.a. What are the effects of a parent implemented drill sandwich intervention on the reading readiness skills (i.e., number of letters learned) of Hispanic Kindergarten children)?

It was hypothesized that the parent-implemented intervention would result in reading readiness gains for the children in the study.

2.b. What are the effects of a parent-implemented drill sandwich intervention on the math readiness skills (i.e., number of learned numbers) of Hispanic Kindergarten children?

It was hypothesized that the parent-implemented intervention would result in math readiness gains for the children in the study.

3.a. What are the effects of a parent-implemented drill sandwich intervention on collateral measures of children's self-esteem and attitudes towards school?

It was hypothesized that self-esteem and attitudes toward school would improve from pretest to posttest for the children participating in the study.

3.b. What are the effects of a parent-implemented drill sandwich intervention on children's classroom behaviors?

It was hypothesized that classroom behaviors would

improve from pretest to posttest for the children in the study.

3.c. What are the effects of a parent-implemented drill sandwich intervention on parent's attitudes toward school?

It was hypothesized that parental attitudes toward school would improve from pretest to posttest for the parents participating in the study.

4.a. Will Hispanic parents and children express satisfaction towards their involvement in the parent implemented intervention?

It was hypothesized that the parents and children would express satisfaction towards their involvement in parent implemented intervention.

4.b. Will Hispanic parents find the drill sandwich procedure easy to implement?

It was hypothesized that the parents would find the drill sandwich intervention easy to implement.

Chapter II

Review of the Literature

Demographic studies show that Hispanics represent the fastest growing minority in the United States. Census Bureau projections suggest rapid growth may continue into the 20th century. By the year 2000 more than one in three Americans will be Hispanic (Hodgkinson 1985). These population changes and projections arise primarily from a) higher birth rates than the rest of the population, b) substantial immigration from Mexico, Central American, the Caribbean, and South America, c) increased longevity of the minority population, and d) lower birth rates of the resident white population (Huang & Gibbs 1992).

As the number of Hispanic children increases, unique challenges are presented to the nation's schools (Huang & Gibbs, 1992). The majority of these children bring into the educational system a different language and a different culture (Huang & Gibbs, 1992). Unfortunately Hispanic children are at risk for academic underachievement and possibly poverty. Presently Hispanics represent the poorest and least well educated of all minority groups. The drop-out rates for all Hispanics combined reflect alarming figures which include 80% in New York, 70% in Chicago, and 50% in Los Angeles and Pennsylvania (National Commission on

Secondary Schooling for Hispanics, 1984). In the Commonwealth of Pennsylvania almost half of Hispanic children drop out each year and 59% are identified as being in need of remediation. In addition Hispanic children are over represented in special education classes in 45% of the school districts in Pennsylvania (Anliott, 1991). Nationally only 44% of Mexicans and 53% of Puerto Ricans 25 years and older have completed high school (U.S. Department of Commerce 1993; Huang & Gibbs, 1992; Casas, Furlong, Solberg & Carranza, 1990).

It is evident from these statistics that the Hispanic child is not experiencing much success within the American educational system. The under representation of Hispanics in high school and colleges will have a detrimental impact on their socio-economic status as adults. It is widely accepted that education is an important means to economic progress. Because the majority of Hispanics have not received a high school diploma is not surprising to find these groups at the lowest levels of professional status, income, and the highest levels of unemployment and poverty (Casas et al., 1990). It is anticipated that the educational underachievement and drop out phenomenon will have disastrous consequences in the U.S. Labor Force. It could possibly lead to an eventual decline in U.S. economic

competitiveness and an increase in public expenses in the form of social welfare and public programs (Casas et al., 1990).

The drop-out and underachievement problem of Hispanic minorities needs to be recognized and addressed. Means for enhancing the achievement of Hispanic children and preventing academic failure. It has been well documented in the research that early adjustment and achievement is positively correlated to later achievement (Keith & Litchman 1994; Reynolds, 1991). Thus any attempts at remediating the educational problems of Hispanic children need to begin early on, especially for identified at risk students (Casas et al., 1990).

Parent Involvement in Education

Rationale for Parental Involvement in Education

It is clear methods of enhancing the educational attainment of Hispanic children are needed. One area which has received much attention in the professional literature as a possible avenue for addressing and combating school failure among Hispanic children is parental involvement in education or home-school partnerships. Parental involvement refers to any variety of activities that allow parents to participate in the educational process at home or in school such as information exchange, decision sharing, volunteer

services for school, home tutoring, and child advocacy (Chavkin & Williams, 1985; Christenson et al., 1992b). In providing a rationale for parent-school partnerships Christenson et al., (1992a) indicate that because of the needs which children bring to school in today's society, collaboration between home and schools is a must. Swap, (1993) also noted that, home school partnerships are no longer a luxury and that there is an urgent need for schools to find ways to support the success of all our children. When our focus is on improving the achievement of children at academic risk, partnerships with families is not just a good idea, rather it is crucial.

The rationale for parent involvement in education has been articulated by many. Kallaghan, Sloane, Alvarez, and Bloom (1993) noted that the research base indicates homes and especially parents contribute significantly to all aspects of children's development including their success in school. Walberg (1984) adds that parents not teachers are the primary agents of children's development, because up to the age of 18 children spend only 13% of their waking life at school. This means that parents at least nominally are responsible for 87% of a student's waking time during their formative years. Family experiences thus appear to be important since it is the home that provides the most

permanent environment and point of reference for children (Kallaghan et al., 1993). Also Edwards (1990) expresses that today's parents are viewed as children's first and most influential teachers. Thus obtaining parental support in the educational process of the child appears to make logical sense.

White, Taylor, and Moss (1992) in a extensive review of parent involvement in early intervention programs summarized the common rationale offered for parental involvement. First, parents are responsible for the welfare of their children. Most parents want a voice in how their child is educated because they are ultimately responsible for the child's well being. Second, involved parents provide better political support and advocacy. Walberg (1984) also argued that the critical contribution to successful learning does not derive from the home or the school alone but from the dynamic relationship between them.

The importance of parental participation and involvement in education has also been articulated through educational legislation such as PL 94-142, and more recently with the amendment to the Education of Handicapped Act (99-459). In actuality, parental involvement in education is included in mandates in 20 states (Christenson et.al., 1992a).

Benefits of Parent Involvement

The benefits of parental involvement in education have been well documented in the research literature. A strong consistent relationship exists between parent involvement and student achievement for school performance. Several literature reviews have been conducted, all with similar findings (Christenson et al., 1992a; Henderson, 1987; Swap 1993):

1. Parent involvement is correlated with student achievement. When parents are involved students have higher grades and test scores, and better long term academic achievement.

2. Parent involvement affects non-cognitive behaviors, student attendance, attitudes about school, motivation, self- concept, and other behaviors improve when parents are involved.

3. There are benefits for parents, teachers, community, and schools when parents are involved. In general these are more successful educational programs and effective schools.

4. All forms of parent involvement strategies appear to be useful; however those that are meaningful, well planned, comprehensive, long lasting, and offer more options for parents appear to be more effective.

5. Achievement gains are most significant and long

lasting when parent involvement is begun at an early age (Christenson et al., 1992a).

In an extensive review of the relationship between parent involvement and school achievement, Henderson (1987) concluded that "the evidence is beyond dispute: parent involvement improves student achievement. When parents are involved children do better in school, and they go to better schools" (p.1). She added that the benefits of parental involvement are not confined to early childhood or the elementary levels; there are strong effects from involving parents continuously throughout high school and children from low income minority families have the most to gain.

Everyone benefits from parent involvement including teachers and parents. In a study investigating the attitudes of parents and teachers towards involvement Epstein (1987), reported that when teachers involve parents they are recognized by parents as having better interpersonal and teaching skills, are given higher teacher evaluations by principals, and indicate greater satisfaction with their job. Also parents report an increased understanding of the functions of schools, and improve their communication with their children and educators in general. In addition, parents tend to participate more in home learning activities and generally rate the schools as more effective (Becker &

Epstein, 1986; Epstein, 1987).

Parental Involvement and Collateral Effects

In addition to student achievement, parental involvement is believed to have positive effects on student's non-academic behaviors such as attendance, attitudes toward school, self-concept, and classroom behaviors (Christenson et al., 1992b). Studies which have examined the collateral effects of parental involvement are for the most part correlational in nature and their main purpose has been to investigate the predictors of school adjustment. Thus parental involvement in education has been one predictor variable among others believed to be related to adjustment.

Overall these studies have consistently reported that parental involvement is positively correlated with academic and non-academic outcomes such as school adjustment, self-competence, classroom behaviors, and self-esteem (Astone & McLanahan, 1991; Grolnick & Ryan, 1989; Keith et al, 1986; Reynolds, 1989; Reynolds, 1991; Reynolds 1992; Reynolds & Bezruczko 1993; Reynolds, Weissberg, & Kaspro 1992; Taylor & Machida 1994).

Specifically Reynolds (1989, 1991, 1992), Reynolds and Bezruczko (1993), and Reynolds et al., (1992) have conducted studies using data from a Longitudinal Study of Children At

Risk (LSCR). This is an ongoing investigation tracing the school adjustment of 1,539 children (95% African-American, 5% Hispanic) graduating from government-funded Kindergarten programs in the Chicago Public Schools. Using path analysis, Reynolds (1989) tested a model of the influences of social cognitive factors on three first grade outcomes for low income minority children. This study focused on the direct and indirect effects of children's attributes (readiness), intervening variables (parental involvement), motivation, and maturity. Data were collected from student's records, progress reports, test scores, and from teacher survey responses assessing children's progress, maturity, and parent involvement. Teachers also assessed student's motivation, mobility (how often they moved), parent involvement in school activities, and socio-emotional maturity (displays confidence, complies with classroom rules, displays confidence). Results of this study indicated that, among other variables, parental involvement was a predictor of first grade reading and math achievement, as well as adjustment and socio-emotional maturity.

In a follow-up study Reynolds (1991) extended results of the 1989 study, and reported findings of school adjustment on the first two years as a function of readiness and intervening variables. Similar results were reported.

Several variables had direct effects on first grade achievement (entering kindergarten readiness, sex, kindergarten achievement and parent involvement in school activities). Major findings indicated that cognitive readiness in kindergarten had pervasive indirect effects on first and second grade outcomes, and that variables alterable by families and school (i.e., parent involvement, mobility) significantly influenced either directly or indirectly early school outcomes.

Two additional extensions of these studies have been conducted by Reynolds et al. (1992), and Reynolds and Bezruczko (1993). As in the other studies, Reynolds and colleagues examined the role of parental involvement on achievement and adjustment. Reynolds et al. (1992) examined outcome variables of competence (participates in school, accepts things not going his/her way), problem behaviors, reading achievement, math achievement and attendance as a function of the following predictor variables: parent involvement in school activities, perceived quality of parental involvement, exposure to stressful life events, and socio-demographic factors (sex, SES, race). Information on achievement was obtained from results of standardized measures of achievement. Information on other variables was obtained from school records. Information on adjustment,

competence, parent participation, and exposure to life events was obtained from teacher reports. Results indicated that perceived quality of parental involvement was positively related to competence, and reading and math achievement, and was negatively related to problem behaviors and absences. Parent involvement in this study was treated as two separate variables. Parent participation was defined as attendance at PTO meetings and school functions, whereas quality of parental involvement referred to amount of contact between parent and teacher, and the working relationship between parent and teacher regarding the child. Thus quality of parent involvement was a better predictor than attending PTO meetings and school functions.

Reynolds et al.(1992) concluded that overall, children of parents qualitatively and quantitatively involved were better adjusted. Reynolds and Bezruczko (1993) conducted an additional extension of the previous studies by measuring outcomes through fourth grade. Several predictors were consistently correlated with grade four outcomes. These included cognitive readiness, grade one adjustment measures, and parent involvement in school.

Other researchers have also investigated the effects of parent involvement on non-academic behaviors. Taylor and Machida (1994) conducted a similar study with 79 children in

Head Start programs. Using correlational analysis, these researchers evaluated the contributions of parental support, peer support, and child attributes to children's adjustment in Head Start. Teachers rated parental involvement on items such as volunteers in the classroom, attends parents meetings, follows through with activities suggested by teachers, and responds to requests for information about the child. Criterion variables were learning skills as measured by standardized preschool tests and classroom behaviors as measured by behavior checklists. Teachers rated the extent to which children display certain behaviors (appropriate classroom behaviors and social adjustment). Also assessed were perceived competence and peer play skills. Results showed that parent involvement was predictive of gains in learning skills and classroom behaviors.

A somewhat different type of parent involvement was explored by other researchers. For example, Grolnick and Ryan (1989) conducted a study in which they evaluated the effects of certain types of parenting styles and their relationship to children's educational outcomes. Specifically, parents were interviewed and asked about the educational and occupational aspirations which they had for their child, and their monitoring of child homework and academic progress. Students in the study also completed

self-report measures on perceived competence, autonomy, and self-regulation. Teachers rated the student on classroom adjustment and various standardized measures of achievement were obtained. Results indicated that parental involvement was significantly correlated with all dependent measures (academic and non-academic). Specifically, parental involvement (mothers more involved than fathers) was positively associated with higher grades, standardized achievement, and teacher rated competence. Overall findings suggest that more involved mothers have better adjusted children.

Although studies which have evaluated the effects of parental involvement on non-academic behaviors have consistently reported positive outcomes several problems are noted in this research. First, these studies have only investigated one dimension of parental involvement (i.e., school based participation) and have neglected to examine parent participation at home. A second problem is that, with the exception of the study conducted by Grolnick and Ryan (1989), parent involvement in these studies has been measured and evaluated by teachers. Because teachers do not always know activities which may take place at home, it is difficult to ascertain the accuracy of their reports. Perhaps the most important limitation relates to the

correlational research methodology. Despite optimistic results, it is not known for certainty that parental involvement leads to better school adjustment since causality may not be inferred from correlational research. Studies are needed which employ sound research methodology including manipulation of specific variables, direct observation of classroom behaviors, and measures of parental involvement at home and at school. Studies conducted by Becker and Epstein (1983), Epstein and Dauber(1991), and Epstein, (1987) report collateral benefits for parents as well as children. Generally parents report and increased understanding of school, parents tend to participate more in home learning activities, and they have a better attitude towards school and involvement. More empirical research is needed which can measure and directly investigate collateral benefits for parents.

Parental Involvement and Hispanics

Although research with Hispanic populations is severely limited, some studies investigating the influence of parental involvement on academic achievement have found that Hispanics like other parents can influence the academic achievement of their children in a positive way. For example, Keith and Litchman (1994) reported findings of a study designed to investigate the extent of the influence of

parental involvement on the academic achievement of Mexican-American students when important variables (family background, parents English proficiency, parent's birth place, students's gender, and previous achievement) were controlled for. Using path analysis strategies these authors concluded that parent involvement does influence the academic achievement of Hispanic students. In this particular study parent involvement was defined as student-parent discussions about school activities, high school plans, home school communications, discussions about courses, as well as parent educational aspirations for the child. The variables of interest in this study were parent involvement and academic achievement. Other variables in the model were home rules (parenting style, family value orientation, TV watching, homework and studying habits). Although this type of involvement does not entail implementation of an intervention strategy, it is considered influential on academic achievement and it is usually the type of involvement studied with middle or high school students (Grolnick & Ryan, 1989; Keith et al., 1986). Results indicated that parent involvement did influence achievement for these Hispanic students. Other findings were that previous achievement was the strongest predictor of present achievement, and that previous achievement

influenced the degree and extent of parent involvement. Another interesting finding was that parents who were less English proficient discussed school activities more and had higher educational aspirations than did parents who were proficient in English. Results of this study need to be evaluated with caution considering the correlational nature of the study.

Qualitative research conducted by other researchers report similar findings regarding Hispanic parental involvement and its influence on achievement. For example, Goldenberg (1989) investigated the role Hispanic parents played in their first grade child's acquisition of word recognition skills. Despite their low socioeconomic status, all parents were capable of helping their child learn to read. Parents in this ethnographic study helped their child by directly teaching or helping their children learn the schools' reading curriculum. No specific training on interventions was conducted with the parents.

In one of the cases presented by Goldenberg (1989), the parents were informed of the child's lack of homework completion. The parents then took the initiative to teach the child at home. The mother also spent time in the classroom providing cues for appropriate classroom behaviors. A second mother in this study took it upon

herself to teach reading without any prompting from the teacher. Specifically, this mother was able to teach letters names and sounds, supervised all homework, taught her child how to blend letters to make words, and when the child came home without homework the mother made up homework for the child as practice. Drastic improvements in the children's reading behaviors were evident within a short period of time.

Although findings of this study are impressive, several limitations are noted. First, in these case studies the children were enrolled in a traditional bilingual education program. In this type of setting, basic skills are taught in the child's native tongue in this case Spanish (Crawford, 1991). This provided a language continuity between the home and the school that is typically not found in most schools, and as such it is not known the extent to which these results can be generalized to other English immersion settings and whether parents would be able to teach the child in the same manner if the curriculum were in English. A second important limitation relates to the research methodology. Because ethnographic qualitative research does not require rigorous control of variables under study, it is difficult to ascertain if changes in student's reading behaviors can in fact be attributed to the parent's

teaching.

Consistent with Keith and Lichtman (1994), and the Goldenberg (1989) studies, Soto (1989), reported similar findings. In her qualitative analysis of high and low achieving Puerto Rican children, high levels of involvement were found among parents of the children who were high achievers.

Despite the fact that parental involvement has been found to benefit achievement of Hispanic as well as non Hispanic children, Hispanic parents have consistently been found to be less involved than other ethnic groups (Klimes-Dougan et al., 1992; Lynch, & Stein, 1987). However, Hispanic parents care about their children's education and want them to succeed in school. In a study by Stevenson, et al., (1990), the beliefs and attitudes of African-American, Anglo, and Hispanic parents were compared. Results revealed that Hispanic parents placed great importance on their children's academic achievement, were eager to be helpful, had enthusiastic attitudes about education, and attempted to provide supportive environments for academic achievement. Hispanic mothers believed greatly in the value of homework and other means of improving the child's educational outcomes. However these mothers felt less capable of helping their children.

These findings have been replicated by other researchers. For example, similar studies were conducted which compared parent participation by ethnicity among parents of children in special education (Lynch & Stein 1987) and parents of children in regular education (Klimes-Dougan et al., 1992). Results indicated that, although Hispanic parents placed a high value on education and had high aspirations for their children, they were found to be significantly less involved than Anglo and African-American parents.

In these studies Hispanic parents reported more barriers than non Hispanic parents and non English speaking parents reported more barriers than English speaking parents. Some of the barriers reported included difficult work schedules, lack of transportation, lack of child care, and language barriers. In addition to these, other barriers have been reported. Soto (1986) found in a needs assessment of Puerto Rican mothers, that Hispanic parents do not know how to help their children, and that parents need information from school about how their child is performing. More specifically, they need information on specific strategies they can apply at home.

This makes sense when one considers the role of cultural differences in parental involvement. In Hispanic

cultures, traditionally the academic instruction of the child is typically left in the hands of the teacher. The parent's priority is to teach non-academic behaviors such as obedience and respect as a way of helping children succeed. Thus, for Hispanic parents getting involved in academic endeavors may require learning new behavior, and a non traditional role (Nicolau, & Ramos, 1990). In addition, because of low educational attainment, Hispanic parents feel less capable and less equipped to help their children (Lynch & Stein, 1987; Nicolau, & Ramos, 1990). Hispanic parents like other parents need direction on how to help their children succeed in school including specific instructional techniques they can use at home.

Parent Implemented Interventions

Ample evidence exists which supports the role of parents as effective intervention agents and home tutors. When parents are trained, they can in fact implement academic interventions and impact on their child's learning. Strategies which have been used by parents range in their level of difficulty. While some strategies are quite simple and do not require a lot of training (e.g., listening to the child read, reading to the child), others are complex and require parents to participate in hours of training and may entail booster sessions on a weekly basis (i.e., direct

instruction of reading). Commonly used parent implemented strategies which can be found in the research literature include hearing reading (Hannon, 1987; Leach & Siddall, 1990; Tizzard, Shoefield, & Hewison, 1982; Thurston & Dasta 1990), flash card drill procedures (Koven, & LeBow, 1973; Thurston, & Dasta, 1990), paired reading (Leach, & Siddall, 1990; Morgan, & Lyon, 1978; Topping & Lindsay 1991), pause, prompt and praise, token reinforcement, and direct instruction (Jason, Johnson, Danner, Taylor, & Kuraski 1993; Leach & Siddall 1990). In addition to these, other researchers evaluated parent implementation of speech therapy (Eiserman, McCoun, & Escobar 1990).

Hearing Reading

The parent-implemented strategy which has been studied most frequently by researchers is the "hearing reading" technique. As the name implies the strategy requires the parent to listen to the child read material which has been previously chosen by, or recommended by, teachers based on child's reading level. Although the strategy varies slightly among studies, generally the parent chooses a suitable time and place in which the child is to read stories brought home from school. The parent is taught to praise the child at least once after each page. When encountering an unknown word, the parent provides the

correct answer and child repeats the word several times followed by reading the word in a sentence. The effectiveness of this procedure has been evaluated by several researchers, and consistently it has been shown that when parents implement this simple procedure their children show marked improvements in reading.

An example of this strategy is presented by Thurston and Dasta (1990). In their study, eight children who were reading below grade level were tutored by their mothers. After 3-4 months of tutoring, experimental group children consistently showed an increase in reading recognition as measured by the Slosson Oral Reading Test. Children in the control group made no increase in reading recognition. A Limitation with this particular strategy is that it is a reading strategy, and despite its easy of implementation it cannot be used with other academic subjects.

Drill Procedures

Another strategy which has been studied in the research evaluating the role of parents as tutor has been the use of flash card drill procedures. Again, implementation of this technique varies between studies, with the basic difference lying in the preparation of the material. In some instances flash cards are sent home by teachers or other educational personnel, and in other instances parents prepare necessary

materials. Parents are then asked to present cards and model correct responding. This is then followed by the child repeating the correct response. In some cases correct responding is followed by reinforcement (i.e., token to be exchanged for other reinforcers). Several researchers have evaluated drill procedures and in all cases, children showed significant gains in dependent measures.

For example, Koven, and LeBow (1973) effectively demonstrated the use of this technique with three second grade children whose skills fell below grade level. In their study they were interested in evaluating whether parents could assist their children improve their reading and spelling. After training, some mothers tutored their children using flash cards containing unknown words from the reading curriculum, and other mothers used the procedure for tutoring spelling. During a 9-week period of parent tutoring the three children in the study showed marked improvements on the percent of correct responses from pre to post-training. Short and long term follow-up data showed moderate maintenance effects for at least two of the children. A strength of this tutoring technique is that unlike the hearing reading strategy, drill procedures can be used with many different academic subjects. Although in most cases this technique has been studied with reading and

spelling one author reports its effectiveness on the acquisition of math facts (Thurston, & Dasta, 1990).

Paired Reading

Perhaps a slightly more difficult strategy which has been implemented by parents and examined by researchers is the "paired reading" technique. Implementation of this strategy requires that the tutor and the tutee alternate between periods of simultaneous reading and independent reading. A novel feature of this technique is that the child chooses the reading material irrespective of its level of difficulty provided the readability level remains within the competence of the tutor. During difficult text the child is supported by reading together (simultaneous reading). Both parent and child read all the words out loud together with the tutor adjusting speed to achieve synchrony. The child must say every word correctly. Where the tutee makes an error, the tutor merely repeats the word until the tutee reads it correctly. When encountering easier sections of text, the tutee makes some prearranged signal to tell the tutor to be quiet (the signal may be a squeeze, a knock) and then engages in independent reading. The tutee continues reading until an error is made which is not self corrected within 5 seconds. The same correction procedure as described above is applied and the pair revert

to simultaneous reading. There is much emphasis throughout on praise for correct reading, self-corrections and signaling to read alone. After some experience with this technique children learn to pick appropriate books. This strategy is similar to the hearing reading strategy, in that its use is limited to reading difficulties and cannot be used with other academic subjects. The positive effects of the paired reading strategy with parents serving as tutors has been documented by several researchers.

Specifically, in a quasi experimental analysis Topping and Lindsay (1991) reported results for 2,372 children consisting of 6.97 months of gains in reading accuracy and 9.23 months in reading comprehension. When compared to children in control groups the difference was statistically significant.

Morgan and Lyon (1978) reported similar results in a presentation of four case studies. After approximately 6 months of tutoring the four children showed gains of reading accuracy and reading comprehension of approximately 1 year. Although results are encouraging more research needs to be done evaluating the effectiveness of this technique with parents. In addition to validating the procedure, future studies need to investigate consumer satisfaction of both students and parents.

Direct Instruction

Other parent-implemented strategies which have been examined by researchers are "pause, prompt, and praise" and "direct instruction" (Jason et al., 1993; Leach & Siddall, 1990). Although empirical support of these strategies is limited to only a few studies, they are worth mentioning in that they are characterized by their complexity. Leach and Siddall (1990) conducted a study in which parental teaching of reading was evaluated by comparing four strategies. The study was design as an attempt to compare the relative effectiveness of the paired reading (PR), pause, prompt, and praise (PPP), hearing reading (HR) and a more intrusive method, direct instruction (DI). The parents of 40 children in two first grade classes were randomly assigned to receive brief training in one of the four instructional methods for helping their child to read at home. Parent training was conducted by the psychologist during separate training sessions for each tutoring group. Time devoted to training depended on the complexity of the strategy, DI requiring the longest amount of time.

Results of this study showed that although improvements were seen in all of the groups , DI (a comprehensive task analyzed, phonic based instructional program which

incorporates fully scripted lessons and finely graded reading tasks) was the superior strategy. Paired reading was found to be superior to hearing reading and pause, prompt, and praise. Although a comparison of strategies makes a unique contribution to our data base, at a glance it appears that the direct instruction strategy might have been more difficult and more time consuming for parents to implement, than the other strategies. Consumer satisfaction data were not obtained thus it is difficult to make definitive conclusions. In either case this study adds to the body of research which supports parents as intervention agents even when the strategy is difficult.

A more recent attempt in the investigation of direct instruction with parents as instructors was conducted by Jason et al. (1993). Participants in the study were high risk transfer students, and their parents. In addition to academic adjustment the researchers were interested in the social adjustment of these transfer students. Children in the study were randomly assigned to three conditions, one which consisted of parent instruction. Results of this study showed that the children in the parent tutoring condition received the most significant gains as compared to the other conditions. In addition these children received high ratings of social and academic adjustment by their

teachers. Besides showing that parents can implement this strategy effectively, an even more important contribution of this study lies in its social validity. School mobility is considered to be one of the most significant childhood problems and one that greatly interferes with learning and social adjustment (Reynolds 1989; Coddington, 1972). Other studies have shown that this type of parent involvement can mediate the negative effects of this childhood life event (Reynolds, 1989).

Assistance with Homework

Other researchers have shown that parent implementation of even simple strategies can have significant effects. For example, Shuck et al. (1983) reported findings of a study in which 75 low SES students and parents participated in a home tutoring program. All the children were at least 2 years below grade level in reading. In the experimental group parents were encouraged to tutor their children using the Parents Encourage Pupils (PEP) calendar books and individualized home-work activities tallied via a progress chart. The materials were designed to be self-explanatory. Therefore parents who could not attend conferences could still participate. Parents were to help their children read a book, do homework assigned by the lab, or play games from the lab. The child could choose the activity from an

individualized reading program. Posttest scores on standardized reading measures showed significant main effects for the children in the experimental group. These children outperformed the control group by at least one grade level. The strategy used in this particular study was simple in that self-explanatory materials were sent home and it did not require of parents to participate in time consuming training. Parents were given several options they could chose from and any specific format they chose was acceptable. In addition, all strategies resulted in increases in reading accuracy and reading comprehension, regardless of their difficulty.

Other Strategies

In addition to the strategies discussed above researchers provide evidence that parents can work with their children in a variety of ways in order to help them succeed in school. In fact Eiserman, McCoun, and Escobar (1990) in an impressive parent involvement study provide support that when given appropriate training parents can impact on the skills of the child much the same way an educational specialist might. In their study 40 preschool children between the ages of three and five with speech disorders were randomly assigned to either clinic based condition or parent training condition. Children in the

clinic based condition received services form two professional speech therapist. The children in the parent condition received services directly from their parents (mothers in this case) who had been trained. Parent training included fundamental procedures in correcting articulation problems, techniques in auditory training and the appropriate sequence for teaching sounds as followed in the clinic based group. Mothers were given worksheets, games, and written guidelines. They were also encouraged to work daily with their children and to maintain a schedule of 20 to 30 minutes, four times weekly. Treatment verification was conducted to document that activities of each program were being implemented as planned. In addition a subsample from each intervention group was videotaped and amount of time parents spent each week working with the child was recorded.

Demographic information indicated that 63% of the mothers in the study did not work, and had mean of 14.5 years of education. Pre test measures showed that all children were comparable in their speech delays. Post test results indicated that the children in the home parent training group performed at least as well as those in the clinic based group on measures of speech and language functioning as well as on measures of general development.

On several variables the home parent training group performed significantly better than the other group.

An interesting aspect of this study was that in addition to evaluating the effectiveness of parents as intervention agents, the authors also were interested in conducting a cost analysis of utilizing parents. Results of the cost analysis showed that, excluding the value of parent time, there was no meaningful difference in program costs. Thus an important implication of this study are that parents can be given significant responsibilities and that school personnel have a viable option of using parents as substantive support to programs.

Summary of Parent Implemented Interventions

Several conclusions can be drawn from the research investigating parent-implemented interventions. First, parents can be effective interventions agents and they can implement a variety of interventions ranging in difficulty level. While some interventions are simple and do not require a lot of training such as hearing reading (Hannon, 1987; Leach & Siddall, 1990; Thurston, & Dasta, 1990) and assisting with homework (Shuck et al., 1983), others can be complex and require time consuming training (Eiserman et al., 1990; Jason et al., 1993; Leach, & Siddall, 1990).

Second, all interventions implemented by parents have

resulted in academic gains for the children involved. Third, parents can help their children with a variety of skills and problems. While most studies have targeted academic skills such as reading, spelling, or math, others have addressed speech delays (Eiserman et al., 1990). Also most studies of parent implemented interventions included regular education children as participants.

Some problems are noted with the research investigating the role of parents as interventions agents. Most importantly is the fact that all studies lack experimental rigor making it difficult to determine if changes can be attributed to actual intervention. In all of the cases reported, group research methodology and case study techniques have been employed. Although this may be acceptable for studies with large number of participants, in some cases group statistics were used for a small group of subjects with pre and post test scores. Sound research methodology not employed and, while some studies report treatment integrity the majority do not.

In addition, consumer satisfaction of parents and students were obtained anecdotally and not on a consistent basis across studies. Because parents are being asked to interrupt daily routines to implement instruction, consumer satisfaction data are particularly relevant, since their

perceptions of the task may greatly impact on integrity and final results. Another problem noted is that the involvement of Hispanics is practically non existent. Only one researcher has documented working with Hispanic children and parents (Goldenberg, 1989), however only a series of case studies lacking in experimental rigor are presented.

Unfortunately the research which has utilized parents as intervention agents does not provide evidence to support the value of specific techniques over others even with non-Hispanic parents. One researcher compared the relative effectiveness of four techniques (Leach, & Siddall, 1990). Despite the fact that one strategy proved to be superior, parents were able to implement all strategies and improvements in the dependent measures were seen with all of the techniques used. Thus a more difficult technique is not warranted.

Drill Sandwich Procedure

One academic intervention procedure that is easy to use and has been shown to enhance academic skills when used by education personnel is a "drill sandwich" technique (Dickinson, & Butts, 1989; Gickling & Armstrong 1978; Shapiro, 1992; Shapiro & Ager 1992). The procedure is based on Curriculum-Based Assessment of Instructional Design (CBA-ID) and its central purpose is to facilitate the delivery of

instruction and control of task difficulty. The procedure stresses that learning of new information is best achieved when its presentation is embedded within the context of known material. Thus the ratio of known to unknown material is carefully controlled. For drill instruction the recommended ratios are 70-85% known material 15-30% unknown material. These ratios are considered instructional and provides optimal learning conditions (Gickling & Thompson 1985). Some evidence exists which supports Gickling's concept of instructional ratio. Few studies have illustrated its efficacy with improved learning and improved behaviors.

Gickling and Armstrong (1978) investigated the effects of instructional level manipulation on eight first and second grade students who were experiencing academic difficulties. Task completion, on-task behavior, and comprehension were monitored across baseline, independent, instructional, and frustrational conditions. Frustrational conditions were those in which the student was being instructed with less than 70% known material. Instructional conditions consisted of 70-85% known and 15-30% unknown material. Independent conditions consisted of assignments containing more than 90% known material. Mean percentages across treatment phases showed that optimal

learning/teaching occurred when students instructional material contained 70-85% known. Students were on-task more, completed more work and achieved higher comprehension.

Dickinson and Butt (1989) provide additional evidence for Gickling's instructional ratios. These authors investigated how altering the ratio of known to unknown material in a mathematics curriculum affected the time on task and academic performance of two high achieving and one low achieving fifth grade student. After establishing rates of performance during baseline under conditions of 70% known and 30% unknown for the high achieving students, and under 50% known material for the student with low achievement, the students with high achievement were instructed for a 20-minute work period under conditions in which they knew less than 50% of the concepts from baseline. The student with low achievement was instructed under 70% known and 30% unknown. Results of the study were somewhat idiosyncratic but showed that, for one high achieving and one low achieving student the ratio of known to unknown material influenced both their on task percentages of correct responses. Shapiro (1992), and Shapiro and Ager (1992) found similar results when Gickling's model was implemented with four elementary aged students with reading problems. In these two studies the

"folding in" technique similar to the Drill sandwich technique, was used for controlled presentation of the material and results support the instructional ratios suggested.

Gickling, Shane, and Croskery (1989) examined high school students who were at risk for failure in general mathematics class . The results indicated that controlled curriculum presentation improved achievement and grades compared with the controlled conditions.

In a direct test of Gickling's concept of instructional ratios Roberts, Turco, and Shapiro (1991) actually taught words to students in the second through fifth grades under one of four conditions (90%k-10%uk; 80k-20uk; 60k-40uk; and 50%k-50%uk). Results of this study found some additional support for Gickling's suggested ratios.

A more recent attempt at examining the effects of a drill intervention based on Gickling's model was conducted by Lopez and Cole(submitted). In this study five kindergarten children were taught letters of the alphabet by their mothers using the recommended ratios of known to unknown. Specifically, five Puerto Rican mothers were trained to implement a drill procedure based on the instructional ratios of 70% known and 30 % unknown. Results of this study showed that mothers were successful in

teaching their children and all of the children made marked improvements on the primary dependent measure. In addition social validity data indicated that participants in the study found the procedure easy to implement and that it had impact on the academic achievement of their child.

Considerations for the Use of Parent Tutoring

Despite the positive results of parent-implemented strategies, other research findings suggest caution in using these approaches. For example, some studies have been conducted which have evaluated the nature of parent-child interactions during structured and unstructured situations. Findings of these studies suggest that a higher incidence of negative parent-child interactions are more commonly found during structured tasks such as tutoring (Cunningham & Barkley, 1979). Also interactions are more likely to be negative with younger children (Mash & Johnston, 1982, 1983). Other studies have indicated that parental behavior is influenced both by the immediate tasks demands and also by more distal variables (i.e., parenting stress, parent self-esteem) (Mash & Johnston 1983). However, Thurston (1989) offered data which showed that, when parents are trained in specific techniques, and appropriate tutoring behaviors, positive behaviors (i.e., praise, corrective feedback, approval) increased to a marked degree. This

suggests parent-implemented interventions may be viable strategies.

Implication for Future Research

Several conclusions can be drawn from the research which has investigated the effects of parent involvement in children's education. Parent involvement improves children's academic achievement. Different types of involvement have been researched and consistently it has been found that parent involvement at all levels is beneficial to student's school performance. In addition to academics, non-academic behaviors have been found to improve when parents are involved in the educational process.

Despite the positive effects of parent involvement several flaws are found in this body of research. First, most of the findings are based on studies which lack experimental rigor, and have neglected to examine important and relevant aspects such as treatment integrity, and consumer satisfaction. Second, although collateral effects is one of the claims made by the parental involvement literature, the research in this area is replete with correlational studies, thus causal links may be unfounded. A third problem noted is that, despite the fact that Hispanics represent such a large portion of the population in the United States, rarely have Hispanics been the subjects in

these investigations. Also the majority of the studies which have targeted Hispanics have only studied the Mexican American population in the south west coast. Because Hispanics represent such a diverse group, generalizations may not be appropriate across groups (Hernandez & Nagel, 1992). Studies are needed which involve other Hispanic populations and address the limitations noted in the parental involvement literature.

The present study attempted to add to the existing literature by training Hispanic parents in the implementation of an academic intervention with their kindergarten children. Specifically this study evaluated the extent to which Hispanic parents, when given training would implement an academic intervention and impact on the academic achievement of their child. A multiple-probe design across subjects was used to evaluate the effects of a parent-implemented drill sandwich procedure on the number of letters learned and the number of numbers learned. Measures of self-esteem, and attitudes toward school, as well as direct observation of specific classroom behaviors, were conducted before and after the intervention. Parental attitudes about school, involvement, and consumer satisfaction were obtained as well. It was anticipated that parents would implement the intervention and this would

result in academic gains. It was also anticipated that there would be positive collateral effects.

Chapter III

Methodology

Participants

Eight kindergarten Hispanic children and their parents/guardians participated in this study. Participants were children attending an elementary school in a school district servicing more than 30% Hispanic children (mostly Puerto Rican) in southeastern Pennsylvania. Written informed consent was obtained from the parent of each student and verbal assent was obtained from students themselves prior to their involvement.

Students. Six Hispanic children enrolled in regular education kindergarten classes who were identified by their teacher as having difficulty learning the letters of the alphabet and the numbers 0-20 were selected as participants for the study. More specifically, selection of the subjects was based on the following criteria: (a) identified by their teachers as knowing less than 50% of the letters taught in either Spanish or English; (b) identified by their teacher as knowing less than 50% of the numbers taught; (c) identified by their parents as being Hispanic; and (d) demonstrated during preassessment that they knew less than 50% of the letters and less than 50% of the numbers already taught in school.

Table 1
Participant Characteristics

Child	Ethnic Back-ground	Age	Place in family	Mother's Education	Mother's Age	Mother's English Proficiency	Child's English Proficiency
Maria	Ecuador	5-2	youngest of three	7 th grade	42	Non English Proficient	Limited English Proficient
Ana	Puerto Rican	5-7	Only child	1 year of College	35	Limited English Proficient	English Proficient/ bilingual
Carmen	Puerto Rican	6-0	oldest of 4	10 th grade	23	English Proficient	English Proficient
Ariana	Puerto Rican	6-2	oldest of 3	High School	23	English Proficient	English Proficient/ bilingual
Albert	Puerto Rican	5-9	youngest of 3	9 th grade	42	English Proficient	English Proficient
Isabel	Puerto Rican	5-7	youngest of 3	High School	33	English Proficient	English Proficient

Two Hispanic students enrolled in regular education kindergarten classes identified by their teacher as having difficulty learning the letters of the alphabet and the numbers from 0-20 were be selected for the study as control students. These students did not receive the intervention until after treatment effects have been observed with all experimental subjects.

Parents/Guardian. Once children had been identified by the teacher, their parents/guardians was contacted by mail. The mailing explained the nature of the study as well as advantages and potential risks of their involvement. The mailing was followed by a telephone call and, for those interested in participating, the eligibility screening form was sent (Appendix A). Final selection of participants depended on results of the screening form. Parents were considered eligible if they meet the following criteria: (a) met the definition of Hispanic (i.e., for purposes of this study Hispanics were defined as individuals who were of Hispanic descent and who have either migrated to the United States from their Spanish speaking country, or were born in the United States but speak Spanish, identify themselves as Hispanic, and have had contact with their country of origin by either visiting or by having lived there); (b) were able to recognize and name the letters of the alphabet (Spanish

or English); (c) were able to recognize the number 0-20 (Spanish or English); (d) were able and willing to spend 20-30 minutes implementing the intervention; (e) were able to provide a quiet area for the intervention to be implemented; and (f) were willing to participate in a training session in which the specifics surrounding implementation of the intervention were taught.

Setting

All parent training and intervention sessions were conducted in the child's home. Progress monitoring was conducted at the child's school in a quiet room outside the classroom while school was in session.

Materials

A set of 52 index cards (3x5) were provided to each parent representing all upper and lower case letters of the alphabet. A set of 21 cards with numbers from 0-20 were also provided. An audio cassette recorder and blank cassette tapes were provided so that individual intervention sessions could be audio taped. In addition, 8-1/2 x 11 sheets of with Intervention checklist (appendix B) detailing the step-by-step intervention procedure were provided in both English and Spanish. These sheets also contained spaces for the parent to write the letters and the numbers that were introduced each day and the order of presentation

of the letters. These were later used to verify that the intervention was implemented as instructed during training.

Probe sheets containing all 52 upper and lower case letters of the alphabet were constructed using a computer program. Letters appeared in random order on each probe sheet. These sheets were used for data collection during progress monitoring sessions by the experimenter. In the same fashion described above, probe sheets containing the numbers from 0 to 20 were constructed. These were also used for data collection during the same progress monitoring sessions.

Primary Dependent Measures

Letters known. The first dependent measure was the number of letters known (LK). To assess LK a list of 52 upper and lower case letters of the alphabet in random order was presented to each child (Appendix C). Incorrect responses such as omissions, substitutions, or failure to respond within 5 seconds were considered unknown and were recorded as letters read incorrectly. Correct responses, or LK, were those not identified as incorrect.

Numbers Known. The second dependent measure was the numbers known (NK). To assess NK, a list of numbers from 0-20 in random order were presented to each child (Appendix C). Incorrect responses such as omissions, substitutions, or

failure to respond within 5 seconds were considered unknown and were recorded as numbers read incorrectly. Correct responses, or NK, were be those not identified as incorrect.

Collateral Measures

Direct observation of classroom behavior. Students were observed using selected categories of the Behavioral Observation of Students in Schools (B.O.S.S.) to assess task engagement (active engagement, passive engagement), and off task behaviors (verbal off-task, motor off-task, verbal off-task) (Appendix D). The B.O.S.S. provided data regarding the percentage of times a student engaged in each of these behaviors.

Teacher ratings of academic behavior. Based on the work of Kornblau (1982), the Teacher Rating of Academic behavior was developed by the experimenter for the purpose of assessing teacher's perceptions of children's classroom behaviors (See Appendix E) Teachers were asked to rate the students on a variety of behaviors considered desirable by teachers on a Likert type scale from 1 (never) to 4 (all of the time) (Kornblau, 1982). Teachers rated the six children at the beginning and end of the study.

Self-esteem. The Pictorial Scale of Perceived Competence and Social Acceptance For Young children (Harter & Pike 1984) (alpha .87) was used to examine the children's

self-perceptions of competence in different domains. This scale is divided into four sub scales each tapping into different aspects of the self concept as interpreted by the author. Two of the subscales assess children's perception of self-competence (cognitive competence, physical competence), and the other two assess children's perceptions of acceptance (peer acceptance, maternal acceptance). The experimenter administered this measure individually to each child on two separate occasions, once prior to the parent implemented intervention and again immediately following intervention at the end of the study.

Attitude toward school. An experimenter-developed six-item scale with happy and sad faces (to illustrate positive and negative feelings) were used to examine the children's attitude towards school (Appendix F). The experimenter administered this scale individually to each child on two separate occasions, once prior to the parent implemented intervention and again immediately following intervention.

Parent's attitudes and involvement. Based on the work of Christenson (1990), and Chavkin and Williams (1989) a survey was developed to assess parental involvement and attitudes towards their child's school (Appendix G). A collateral effect investigated in this study was whether parental attitudes towards school would improve as a result

of participating in the training and implementation of home intervention. Parental attitudes were prior to training and again immediately following intervention. The survey consisted 15 items which provided information on three broad areas: family attitudes towards the child's school and education, parental attitudes about involvement, and parental perceptions about the child's achievement. The experimenter administered the survey individually to each parent on two separate occasions, once prior to training on the parent implemented intervention and again immediately following intervention at the end of the study.

Consumer satisfaction. A consumer satisfaction questionnaire was completed by each parent at the end of the study (Appendix H). A 13-item questionnaire, created by the author, was used to evaluate and explore parents' perceptions about the procedures and their involvement in helping their children learn letters and numbers. Parents were asked whether they enjoyed helping their child learn the letters of the alphabet, felt they had helped their child learn the letters, and how they perceived their child's involvement in the daily procedures. Parents were also asked to describe difficulties they encountered, whether they found the procedures difficult, and whether they would do it again. Answers to the survey were a

dichotomous "yes" or "no".

Data Collection

Progress Monitoring

Letters. Progress monitoring was conducted at the child's school once each week on goal level material (upper and lower case letters of the alphabet). Using the probe sheets described previously, the experimenter presented the sheets to each child with the instruction to read the letters on the sheets as the experimenter pointed to them. Letters read correctly and incorrectly on each sheet were recorded. This same method was used during preassessment, throughout the study (progress monitoring), and during collection of generalization data.

Numbers. As described above, during the same progress monitoring sessions, monitoring of numbers was conducted once each week on goal level materials (numbers from 0-20). Probe sheets containing the numbers from 0-20 in random order were presented to each child. The experimenter presented the sheets to each child with the instruction to read the numbers on the sheets as the experimenter pointed to them. Numbers read correctly and incorrectly were recorded.

Classroom Observations. Observations were conducted by a trained independent observer (naive to the purpose of

the study), on three separate occasions in their classrooms during the period of the day in which the children were studying letters and studying numbers. These observations were conducted immediately prior to the parent-implemented intervention and again following the intervention at the end of the study.

Positive and Negative Parent-child Interactions. The audio tapped sessions of the interventions as well as sheets of the step by step procedure were used to obtain information on the parent child interactions. Occurrence of positive interactions and negative interactions were recorded during different stages of the parent tutoring. A coding system developed by the primary investigator was used to code these interactions and included: child positive behaviors, child negative behaviors, parent positive behavior, parent negative behavior, corrective feedback and directives (see Appendix I for detailed descriptions of these categories) These categories were scored using 15-second partial interval recording system. An independent observer served as the primary observer.

Interobserver Agreement

Interobserver agreement was obtained for classroom observation and progress monitoring sessions and for parent-child interactions during tutoring.

Progress Monitoring. To obtain interobserver agreement for progress monitoring data, trained observer independently listened to and scored audio taped recordings of 25% of the progress monitoring sessions across all phases of the study. Inter observer agreement was calculated by comparing the two score for that progress monitoring session and dividing the total number of agreements by agreements plus disagreements and multiplying by 100.

Classroom Observations. For classroom observations, an independent observer naive to the purpose of the study was trained to a criterion of three consecutive trials with at least 90% agreement prior to formal data collection. This observer served as primary observer. The observer simultaneously but independently conducted classroom observations along with the experimenter. Interobserver agreement was obtained on at least 25% of the classroom observation sessions throughout all phases of the study. Interobserver agreement was obtained by dividing the total number of agreements by agreements plus disagreements and multiplying by 100.

Positive and Negative Parent-child Interactions. For parent-child interactions a second observer trained in the observation coded the audiotapes independently. Interscorer agreement data were obtained on at least 25% of the sessions

across subjects. Interobserver agreement was obtained by dividing the total number of agreements by total agreements plus disagreements and multiplying by 100.

Experimental Design

A multiple-probe design across three pairs of subjects (Horner & Baer, 1978) was utilized to evaluate the effects of the parent-implemented intervention on the LK, NK, and classroom behaviors. As required by this design the intervention was presented to one pair at a time. Once intervention effects on the primary dependent variables (LK and NK) were observed with the first pair, the intervention was presented to the next pair. Probe sessions were conducted with all remaining students prior to start of intervention session with each student. Likewise collateral measures were administered in a sequential fashion with each student/parent just prior to start of the intervention phase. The intervention was introduced to remaining participants sequentially in a similar fashion. Students who served as control subjects were probed through out the study and received treatment at the conclusion of the study.

Procedures

Selection of Participants

A letter with a brief description of the research was

mailed to all kindergarten teachers in a school servicing more than 30% Hispanic children. Following the letter a presentation was made describing in detail the purpose of the study and the teacher's role in identifying children. Teachers were asked to identify children who were having difficulty learning the letters of the alphabet and numbers from 0 to 20.

After the children had been identified by the teachers a mailing explaining the nature of the study as well as benefits and potential risks was sent to all parents. The mailing was followed by a telephone call, and for those interested in participating, the eligibility screening form was sent. Parents were selected if they met the eligibility criteria. For students whom parental consent and student assent has been secured preassessment was conducted. Students selected for the study were those who were shown know less than 50% of the letters and numbers taught during preassessment. Parents of the children who qualified for the study were presented with an incentive consisting of a 25 dollars gift certificate from the store of their choice at the conclusion of the study.

Preassessment

The investigator conducted preassessment sessions individually with each child in a quiet room in the school.

children were presented with the probe sheet placed on a table before them and were asked to name all the letters on the sheet. The same procedure was followed for the assessment of numbers. Letters and numbers read incorrectly (unknown), and letters and numbers read correctly (known) were recorded for each child. Numbers of errors during preassessment was used as one criterion for eligibility in the study.

Baseline

Probes. Using a probe procedure identical to that described during preassessment, a probe sheet with the letters, and another with the numbers were presented to each child on three separate sessions. Letters and numbers read incorrectly (unknown), and letters and numbers read correctly (known) were recorded for each child.

Classroom observations. During the time that baseline data were being collected, classroom observations were conducted by the experimenter and a trained independent observer using the B.O.S.S. Each participant was observed during this week for one 30-minute session during instruction of letters and numbers.

Collateral measures. After the probe and classroom observation data had been collected, but before the parent training had been conducted, the experimenter administered

measures of self-esteem and attitudes toward school with each child. Teacher ratings' of the children's academic behavior were also obtained during this time.

The Parent Attitude questionnaire was administered to each parent just prior to the parent training. This insured that any changes in attitudes toward involvement and toward the child's education were to manipulation in the study and not to other factors.

Parent Training

Parents were trained individually at their home by the experimenter. The experimenter brought all materials necessary (i.e., intervention checklist, index cards cassette recorders, and blank audio cassettes). Each component of the intervention was explained to the parent, and immediately modeled by the experimenter and practiced by the parent. Review of steps were provided to parents on a weekly basis. The parent-implemented intervention consisted of a drill sandwich procedure as follows:

Letters. Known (k) and unknown (uk) letters were identified by the experimenter from the initial preassessment and baseline phases of the study. Letters which were consistently identified by children during preassessment and during the baseline phase were considered

known. All others were considered unknown.

Index cards were developed for each child containing the 52 upper and lower case letters of the alphabet. The sets of index cards were separated into known and unknown for each child. The parent was then instructed to select seven (or 70%) k letters and three (30%) uk letters. Unknown letters were sandwiched (inserted) with the k letters in the 3rd, 6th, and 7th positions. Parents were to show flash cards to the child and ask the child to name the letter. Parent were also to praise the child for all known letters. For each unknown letter the parent was to stop, read the letter, and use it in a word. The child was asked to repeat the letter, and to trace the letter with index finger on the surface (table, floor).

Parents showed flash cards in this same sequence five times during each intervention session four times each week. A mark was placed in the corner of the uk card each day the child was able to read the letter without hesitation. Two marks (representing 2 consecutive days that the child could read the letter) was the criteria used for unknown to become known. As uk letters become k, old k letters were replaced by new uk letters (keeping the ratio of approximately 70% known and 30% unknown).

After all components had been reviewed and practiced,

the entire procedure was modeled by the author and practiced by the parent, each taking the role of parent and child at least once.

Numbers. The same procedure described above was used for teaching of numbers. Cards were developed for each child containing the numbers from 0-20. Known and unknown numbers were identified by the experimenter during initial assessment and baseline phases of the study. Numbers which were consistently identified by the child during preassessment and baseline phase were considered known. All others were considered to be unknown. The sets of index cards were separated into known and unknown numbers for each child. Parents were to show flash cards to the child and ask the child to say the number. Parents were also to praise the child for each known number. For each unknown number the parent was to stop, say the number, and then show the concept for that number (e.g., sheet with five circles), and count the circles. The child repeated the number and traced with index finger on the surface.

After all components had been reviewed and practiced, the entire procedure was modeled by the author and practiced by the parent, each taking the role of parent and child at least once.

Parent-Implemented Intervention.

Parents were instructed to follow the drill sandwich procedure, as presented during training, each evening, four evenings per week. To help prompt parents in performing each step of the procedure, the intervention checklist containing step-by-step procedure in English and Spanish was given to each parent during training. Parents were instructed to check each step as they complete it. A tape recorder and blank audio cassette tapes were provided and all sessions were audio taped.

During each session the parents implemented the intervention first with the letters and then with the numbers. Implementation of the drill procedure with letters and numbers took approximately 20-30 minutes per session. The parent-implemented intervention began immediately following parent training.

Follow-up

Using an identical procedure describe above the children in the study were assessed at least one month following the intervention period.

Treatment Integrity

Audio taped sessions of the intervention as well as intervention checklist (Appendix B) were used to obtain procedural reliability. The experimenter collected all tapes and completed sheets once each week. The experimenter

listened to the tapes and using an intervention checklists identical to the one completed by the parent, recorded steps of the intervention completed including letters and numbers introduced in each session, letters and numbers read correctly, letters and numbers read incorrectly, and whether the new letters and numbers were presented in correct positions. These sheets were compared to those completed by parents to determine percent procedural integrity for each session. Number of steps completed was divided by the total number of steps in order to obtain percent of steps completed for each parent.

Data Analysis

The two primary dependent measures, LK and NK, were evaluated by visual inspection of graphic displays, Percentage of Non-overlapping Data Points (PND) (Scruggs, Mastropieri, & Casto, 1987). Changes in slope were evaluated with the use of Ordinary Least Squares Regression (Shinn, Good & Stein 1989). In addition effect size (Kromrey & Foster-Johnson 1996) was calculated using mean responding in order to determine significant mean performance changes in the data across baseline and treatment phases of the experiment. The formula used for calculating effect size consisted of mean responding during the baseline phase subtracted from mean of intervention phase and deviding the

total by the standard deviation of the baseline phase.

intervention phase was Collateral effects were analyzed by comparing pre and post results of the collateral measures administered as well as results of the B.O.S.S. observation code.

Chapter 4

Results

A parent-implemented drill procedure was presented to six Hispanic kindergarten children in a multiple-probe fashion (Horner & Baer, 1978). Intervention was introduced in a staggered format across three pairs of children. Number of weeks of the parent implemented intervention varied across participants with the first pair participating 11-15 weeks, the second pair 8-12 weeks, and the third pair 6-8 weeks. For all experimental students intervention continued beyond the end of the school year for an additional 3 weeks with the exception of one child (Isabel) who moved to a different city.

Treatment Integrity

Treatment integrity data were collected by scoring audiotapes of the tutoring sessions recorded by all parents. Procedural integrity or percentage of steps completed was calculated for 25% of all sessions. For the sessions scored, mean procedural integrity ratings for letters was 89% for Maria; 100% for Ana; 90.5 for Carmen; 88 % for Ariana; 92% for Alberto and 94% for Isabel. Mean integrity ratings for numbers was 87.6% for Maria; 100% for Ana; 90% for Carmen; 86.5% for Ariana; 92% for Alberto; and 92% for Isabel. Table 2 presents percentages of steps completed.

Table 2
Percentage of intervention steps completed during tutoring of Letters

<u>Intervention Steps</u>	Maria	Ana	Carmen	Ariana	Alberto	Isabel
1	100	100	100	100	100	100
2	100	100	100	100	100	100
3	100	100	100	100	100	100
4	100	100	100	100	100	100
5	80	100	100	100	100	60
6	20	100	20	66	20	100
7	100	100	80	100	100	100
8	90	100	100	20	100	100
9	100	100	100	100	100	100
10	100	100	100	100	100	100
<u>Totals</u>	89.0	100	90.0	88.0	92.0	94.0

Intervention steps completed by Numbers

<u>Intervention Steps</u>	Maria	Ana	Carmen	Ariana	Alberto	Isabel
1	100	100	100	100	100	100
2	100	100	100	100	100	100
3	100	100	100	100	100	100
4	100	100	100	66	100	100
5	80	100	60	33	60	20
6	10	100	40	100	80	80
7	100	100	100	100	100	100
8	86	100	100	66	80	100
9	100	100	100	100	100	100
10	100	100	100	100	100	100
<u>Totals</u>	87.6	100	90.0	86.5	92.0	92.0

Note. Detailed description of each step is provided in Appendix B

Interobserver Agreement

Interobserver agreement was obtained on at least 25% of all progress monitoring sessions, classroom observations, and coding of the parent-child interactions during tutoring. Table 3 presents the percent agreement scores for progress monitoring sessions, classroom observations and coding of parent child interactions.

Dependent Measures

Letters known (LK) and numbers known(LK). Results of progress monitoring sessions collected during baseline and intervention phases are presented in Figures 1 and 2. The findings indicate that the parent implemented drill procedure resulted in gains on letters and numbers known for the experimental subjects.

Ordinary Least Squares. Regression was calculated for each student. Slope obtained indicated how much change on the average the student demonstrated on the letters known from one session to the next. Results indicated that, on the average, children indexed a positive growth. Table 4 summarizes slope data representing the number of letters and numbers gained per session for each child. For Maria results of this analysis indicate that slope values increased from .70 during baseline to 1.36 during intervention. For numbers slope

Table 3
Reliability Data: Percentage of Inter Observer Agreement

Progress Monitoring	Range	Mean
Letters	98.0-100.0	99.8
Numbers	100.0-100.0	100.0
Classroom Observations		
AET	95.0-100.0	98.0
PET	84.0-96.0	92.0
OFT-M	91.0-100.0	96.0
OFT-V	95.0-100.0	99.0
OFT-P	89.0-100.0	95.3
Parent-Child Interactions		
CP	95.0-100.0	97.8
NG	93.0-100.0	98.3
PP	92.0-100.0	96.2
PN	97.0-100.0	99.2
CF	93.3- 100.0	97.7
D	91.0-100.0	95.0

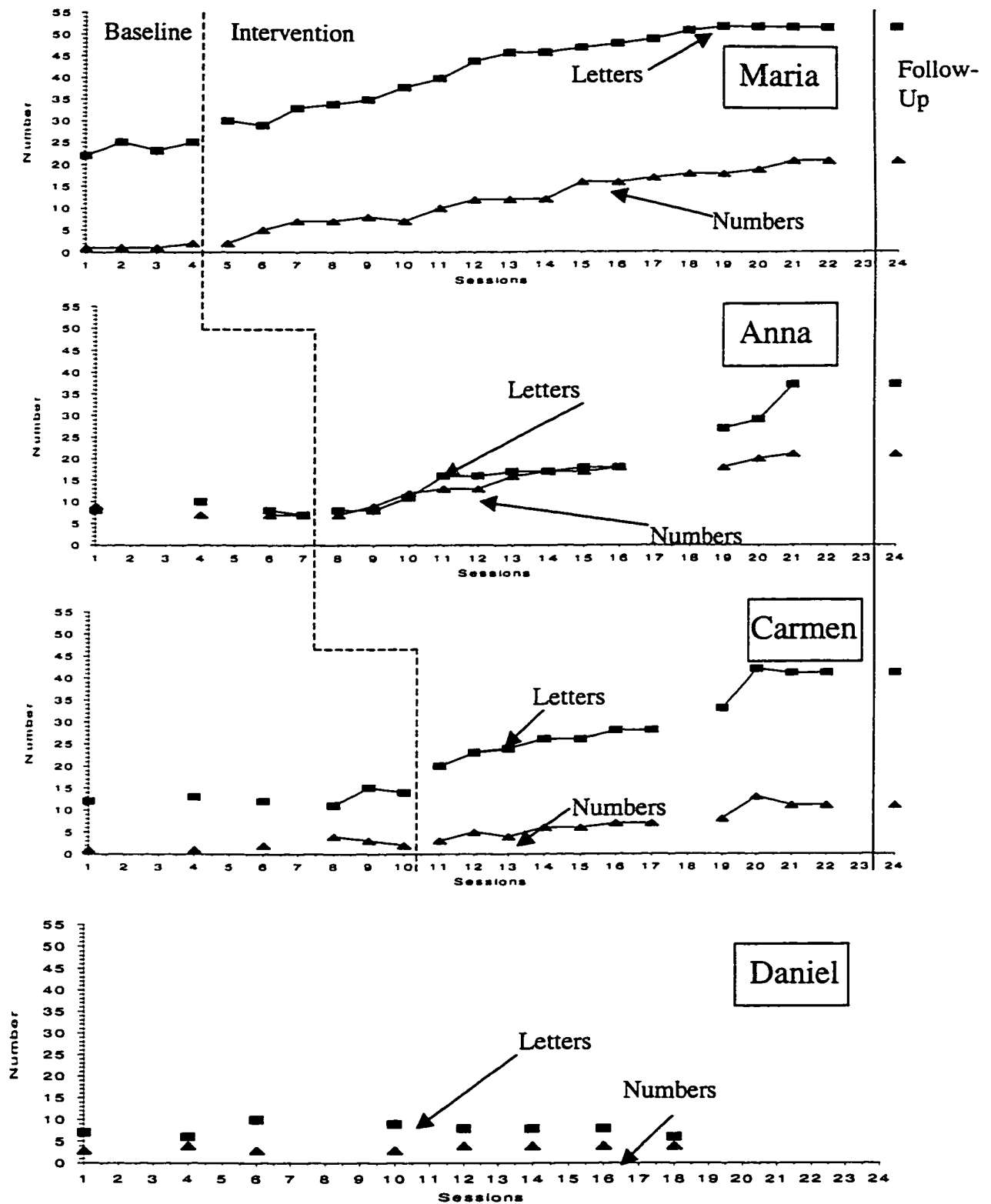


Figure1. Number of letters and numbers known for group 1

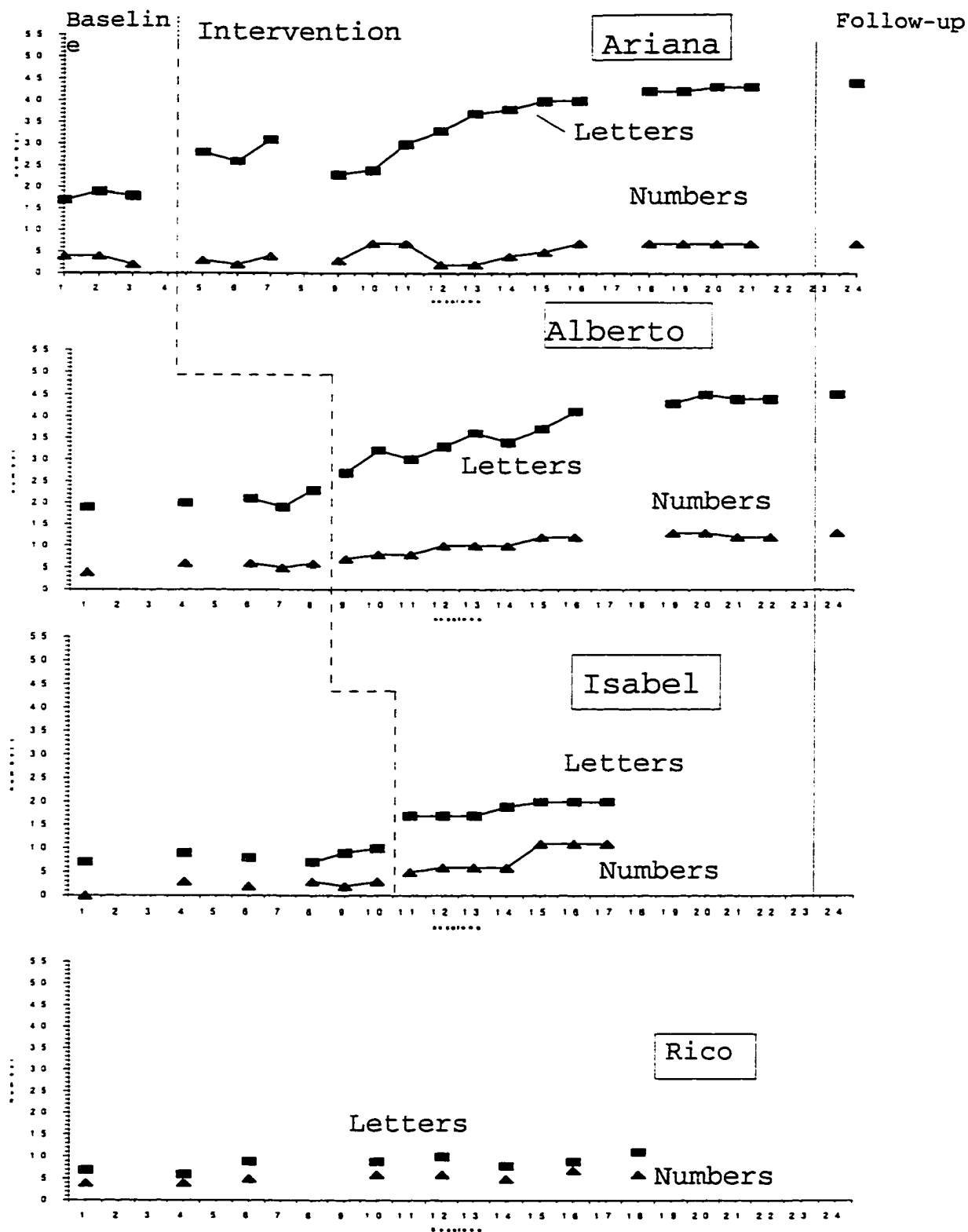


Figure 2. Number of letters and numbers known for group 2

values increased from .30 during baseline to 1.02 during intervention.

Slope values for Ana indicated that during baseline she indexed a negative growth or a decline of about .16 letters per week. This might be attributed to the fact that there was variability in the data during baseline phase and her knowledge of letters was inconsistent from session to session. During intervention however slope values increased to 1.88 letters per week. For numbers slope values increased from .33 during baseline to .833 during intervention.

For Carmen slope values increased from .19 during baseline to 1.85 during tutoring of letters. For numbers, slope values increased from .23 during baseline to .69 numbers learned per week during intervention. Similar results were seen for the second pair of children whereby increases were evident for all of the children from baseline to intervention phase.

Slope values for Ariana also indexed a positive growth, but not as pronounced for her acquisition of numbers. Data for letters indicated a slope value increase from .50 during baseline to 1.16 during intervention. For numbers, however ordinary least squares analysis does not indicate any growth during baseline but shows a slight increase of

Table 4
Slope and percentage of nonoverlapping data points for
letters and numbers learned

	<u>Slope</u>		<u>Percentage of non-</u>
	<u>Baseline</u>	<u>Intervention</u>	<u>overlapping</u> <u>data points</u>
Group 1			
<u>Maria</u>			
Letters	0.70	1.36	100
Numbers	0.30	1.02	94
<u>Ana</u>			
Letters	-0.16	1.88	83
Numbers	0.33	.83	83
<u>Carmen</u>			
Letters	0.19	1.85	100
Numbers	0.23	0.69	81.2
Group 2			
<u>Ariana</u>			
Letters	0.50	1.16	100
Numbers	-x	0.25	66
<u>Alberto</u>			
Letters	0.37	1.21	100
Numbers	0.21	0.37	100
<u>Isabel</u>			
Letters	0.19	0.64	100
Numbers	0.23	1.17	100

.25 numbers intervention.

For Alberto slope values increased from .37 during baseline to 1.16 during tutoring of letters. For numbers slope values increased from .21 during baseline to .37 during intervention.

Isabel's data also indicated a positive growth from baseline to intervention. Because Isabel was the last child to begin receiving the intervention, she received the intervention for a shorter period of time than the other children. Also immediately after the end of the year Isabel and her mother moved out of the area, therefore continuation of data collection was not possible as with the other children. Data collected during the period of intervention indicates positive growth for both dependent measures. For Isabel slope values increased from .19 to .64 for LK. For NK slope values increased from .25 to 1.17 during intervention.

For control subjects slope values indicated that Daniel was learning about .02 letters and .04 numbers per week. Rico's regression line indicated growth of about .19 letters and .14 numbers per week.

Numbers of learned letters and numbers were maintained for all the children at follow up except for Alberto and Ariana who increased one letters at follow-up.

Percentage of non overlapping data points was also calculated to define changes performance of letters and numbers between baseline and intervention. These are summarized in Table 3, and show nonoverlapping data points weakest effects was .66% for Ariana during parent tutoring of numbers, followed by 81.2% on non-overlapping data for Carmen with data collected for numbers known, 83% for Ana for both letters and numbers known, 94% for Maria for data on NK. The remainder percentages of percentage of non-overlapping data were at 100%.

Effect size. To further evaluate the extent to which effects of the intervention were present, calculation of effect size was conducted. Due to some of the disadvantages associated with visual inspection of data in single subject studies calculation of effect size has become a viable alternative because it can augment the interpretation of results and provide additional information about the effectiveness of interventions (Kromrey Foster-Johnson, 1996). Effect size was calculated using mean responding between baseline and intervention phases. Table 5 summarizes mean data for baseline and intervention phases of LK and NK , and effect size data for all experimental subjects. For Maria, the mean number of letters known was 23.75 during baseline and 43.22 during intervention. The

effect size calculated was 12.98, meaning that Maria showed mean gain of 12.98 standard deviation units from baseline to intervention (her mean of LK increased from baseline to intervention about 13 standard deviation units). Maria's mean of NK was 1.25 during baseline and 12.66 during intervention. The effect size was 22.93 indicating that Maria increased her knowledge of numbers by almost 23 standard deviation units between baseline and intervention.

Ana's mean LK was 8.25 during baseline and 18.50 during intervention. Effect size was 8.14 of LK, an increase of slightly more than 8 standard deviation units from baseline to intervention. Ana's mean of NK was 7.50 during baseline and 15.08 during intervention with an effect size calculated of 7.5.

Carmen's mean LK during baseline was 12.83 and 30.18 during intervention with an effect size of 11.78.

Carmen's mean NK was 2.16 during baseline and 7.36 during intervention with an effect size of 4.44 NK.

These positive results of the parent intervention were also seen with the second group of students indicating positive effects on the children's knowledge of letters and numbers.

Ariana's mean number of LK was 18.00 during baseline and 34.66 during intervention with an effect size calculated

Table 5
Effect sizes for changes in means in terms of standard deviation units

		<u>Baseline</u> <u>Mean</u>		<u>Intervention</u> <u>Mean</u>	<u>Effect</u> <u>Sizes</u> (mean change in standard deviation units)
<u>Group 1</u>					
<u>Maria</u>					
	Letters	23.75	(1.50)	43.22	(8.14) 12.98
	Numbers	1.25	(.50)	12.66	(5.88) 22.83
<u>Ana</u>					
	Letters	8.25	(1.25)	18.50	(8.62) 8.14
	Numbers	7.50	(1.00)	15.08	(4.31) 7.58
<u>Carmen</u>					
	Letters	12.83	(1.47)	30.18	(7.87) 11.78
	Numbers	2.16	(1.16)	7.36	(3.13) 4.44
<u>Group2</u>					
<u>Ariana</u>					
	Letters	18.00	(1.00)	34.66	(7.20) 16.66
	Numbers	3.33	(1.15)	4.93	(2.15) 1.39
<u>Alberto</u>					
	Letters	20.40	(1.67)	37.16	(6.13) 6.44
	Numbers	5.40	(.89)	10.58	(2.06) 5.79
<u>Isabel</u>					
	Letters	8.33	(1.21)	18.57	(1.51) 8.45
	Numbers	2.16	(1.16)	8.00	(2.82) 4.99

Note. Values in parentheses are standard deviations.

of 16.66. Her mean NK was 3.33 during baseline and 4.93 during intervention. The effect size was calculated at 1.39. Given that Ariana's mother discontinued tutoring of numbers, this effect size although modest indicates that some learning still took place. Alberto's mean LK was 20.40 during baseline and 37.16 during intervention with an effect size 6.44. His mean NK was 5.40 during baseline and 10.58 during intervention. An effect size of 5.79 was calculated.

Lastly Isabel's mean LK during baseline was 8.33 during baseline. After implementation of the intervention her mean for LK was 18.57 with an effect size of 8.45. Isabel's mean for NK was 2.16 during baseline and 8.00 during intervention. Effect size for numbers was 4.99.

Effect size was not calculated for control subjects due to the fact that the intervention was not implemented as part of the study , thus a comparison was not possible.

Collateral Measures

A secondary purpose of this study was to assess whether the parent-implemented intervention had benefits on children's non academic behaviors including classroom behaviors, self-esteem, children's attitudes toward school, parent attitudes toward school, and children's attitudes toward school.

Classroom Behaviors

Children's classroom behaviors were assessed by conducting direct observation with selected categories of the Behavioral Observation System (B.O.S.S.). Findings show that the parent-implemented intervention resulted in improvements in classroom task engagement for all experimental subjects. Specifically on task behaviors increased and off task behaviors decreased. Table 6 summarizes observational data. Analysis of these data indicate consistently that on task behaviors increased and off task behaviors decreased for all the subjects. Ariana discontinued her enrollment in the school district where the study was being conducted, thus observational data were not available for her.

Teacher Ratings of Academic Behaviors. To further assess the classroom behaviors of the students the Teacher Rating of Academic behavior was completed by teachers for each child prior to the child receiving the intervention and again at the end of the school year. The maximum possible positive score on questionnaire was 40 or an average of 4.0. For all students, totals obtained show modest increases from pre intervention to post intervention rating. Table 7 presents data on teacher ratings for each child. Close analysis of each item show that for all children improvements in two areas were consistently seen (item

Table 6**Total task engagement at pre and post intervention****Group 1**

Maria	<u>Total On Task</u>		<u>Total Off Task</u>	
	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
	74.2	92.9	56.7	27.2
Ana	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
	63.1	94.3	72.4	35.2
Carmen	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
	69.8	81.0	98.0	51.5

Group 2

Ariana	<u>Total On Task</u>		<u>Total Off Task</u>	
	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
	63.6	ND	76.0	ND
Alberto	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
	79.1	99.0	38.5	4.1
Isabel	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
	72.5	93.8	55.7	23.4

Table 7**Teacher Ratings Academic Behavior**

Item	Maria		Ana		Carmen		Ariana		Alberto		Isabel	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	3	3	3	4	4	4	4	nd	4	4	2	3
2	2	3	2	2	2	2	2	nd	2	2	2	3
3	2	3	2	3	2	3	3	nd	2	3	1	3
4	2	3	4	4	2	2	3	nd	2	2	1	3
5	3	3	3	4	3	3	4	nd	3	3	2	3
6	3	3	4	4	4	4	4	nd	2	2	1	3
7	3	3	4	4	4	4	4	nd	2	2	1	3
8	3	3	4	4	2	3	3	nd	3	3	2	3
9	3	3	4	4	3	3	4	nd	3	3	1	3
10	3	4	2	3	2	3	3	nd	2	3	1	3
totals	2.7	3.1	3.2	3.6	2.8	3.1	3.4	nd	2.5	2.8	1.5	3.0

Note. Nd listed for Ariana indicates no data available.

number 3 "Is alert and attentive", and item number 10 "Is learning academic subjects"). Additional increases were seen in some of the other categories, however not consistently for all children. Only one student, Isabel, showed consistent improvements on all ratings from pre to post ratings of her classroom behaviors.

Self-Esteem. The Pictorial Scale of Perceived Self Competence and Social Acceptance for Young Children (Harter & Pike, 1984) was administered to the experimental students during baseline and again at the end of the study. Scores obtained on this measure are provided in Table 8. On the cognitive acceptance sub-scale all students showed an increase in scores from pre to post intervention. On the peer acceptance sub scale all children except one (Carmen) showed an increase from pre to post intervention. On the physical competence sub scale improvements were seen four students, but not for Ana or Carmen. A similar pattern was observed with the maternal acceptance sub scale where improvements were seen for four children, but not for Ariana and for Carmen where decreases in scores were obtained from pre to post intervention.

Children's attitude toward school. All the experimental students were asked to complete the "My School Feelings" questionnaire. Responses were assigned a "0" for

Table 8

Results of The Perceived Competence and Social Acceptance
for Young Children

Student	Cognitive		Peer		Physical		Maternal	
	Acceptance		Acceptance		Acceptance		Acceptance	
Maria	Pre	Post	Pre	Post	Pre	Post	Pre	Post
	3.1	4.0	3.3	4.0	3.6	4.0	3.8	3.8
Ariana	2.8	3.5	3.3	3.6	3.3	3.5	3.8	2.5
Ana	3.0	3.5	3.0	2.5	3.5	3.1	3.5	3.8
Alberto	2.3	2.5	2.0	3.5	3.0	3.5	2.5	3.1
Carmen	2.8	3.6	3.8	3.6	4.0	3.8	4.0	3.8
Isabel	2.8	3.3	2.5	3.6	3.5	3.8	3.1	3.5

a negative rating and a "1" for a positive rating, with a maximum positive rating of 5 and a maximum negative rating of 0. Results showed that moderate increases in ratings with no consistent patterns were found across all subjects. Overall a 1-point increase was seen with four students indicating little change in children's feelings toward school between pre and post intervention. For Ariana school feelings deteriorated, (score went from 4 to 2, and for Maria they remained unchanged (score of 5).

Parental attitudes toward school. The maximum possible score on this scale was 53 points for the highest positive rating and 15 points for the lowest possible negative rating. Results of this analysis are provided in Table 9 Overall ratings improved from pre to post intervention for five out of the six children. More detailed analysis reveals two general findings. First, items in which parents rated the children's performance in school, and their academic achievement improved for four out of the six children, indicating that these parents perceived their children's achievement in school as being better after

implementation of the intervention. Children's educational aspirations remained unchanged for five out of the six children However, these parents had high aspirations of their children to begin with. A second general finding

was that, with regards to parental perception about the school, ratings improved for four out of the six children on the items exploring attitudes toward teachers and school (item #11: teachers seem interested in my child's education; item # 12: I feel welcome; and item # 14: I receive information on how to help my child). Other changes were seen; however no other consistent patterns were found.

Table 9

Responses to "Parent Survey"

Student	Pre Intervention	Post Intervention
Maria	36	47
Ana	44	39
Carmen	23	47
Ariana	36	47
Alberto	46	47
Isabel	32	41

Mother Child interactions. Interactions between mother and child were assessed by coding of the audio taped tutoring sessions conducted during the beginning, middle, and end of the intervention phase. Data obtained on the parent and child behaviors are presented in Table 10, and reveal three general findings: a) children's positive

behaviors decreased over time for five of the six subjects; b)parent negative behaviors increased over time for four of the six children; and c) corrective feedback and directives increased for three of the children.

Consumer satisfaction. Consumer satisfaction questionnaires were completed by students and parents. Ratings as well as anecdotal information from the participants were positive. For the mothers a 13-item questionnaire developed by the experimenter was used to evaluate and explore the perceptions about the procedure and their involvement. Results indicated that 100% of the parents enjoyed helping their child learn the letters and numbers. Most of the parents felt that they had helped in their children's learn the letters and the numbers, except for one (Ariana's mother) who felt she was not able to teach the numbers. Most of the parents (five out of six) indicated that they thought their child enjoyed learning the letters and numbers except one who felt the child enjoyed learning numbers, but not letters. Also four out of six parents indicated having difficulties finding time to implement the intervention, and they also reported minor difficulties with child cooperation on 100 % of the tutoring sessions. The most common presenting problem was the child

Table 10
Percentages of Parent and child Behaviors During Tutoring

<u>Maria</u>	<u>Beginning</u>	<u>Middle</u>	<u>End</u>
CP	83.0	80.0	55.0
CN	13.3	0.0	12.5
PP	56.0	80.0	42.5
PN	0.0	0.0	15.0
CF	10.0	15.0	20.0
D	50.0	35.0	37.0
<u>Ana</u>			
CP	76.5	75.0	70.5
CN	10.5	8.5	7.0
PP	16.0	24.0	13.0
PN	6.5	5.0	15.0
CF	26.0	29.5	26.0
D	34.0	21.0	17.5
<u>Carmen</u>			
CP	97.0	84.0	75.0
CN	4.4	8.0	13.0
PP	0.0	26.0	15.0
PN	0.0	2.0	4.0
CF	20.0	31.0	26.6
D	20.0	20.0	6.6
<u>Ariana</u>			
CP	93.0	75.0	66.0
CN	2.0	0.0	0.0
PP	64.0	17.0	4.7
PN	8.0	17.0	38.0
CF	22.0	31.0	47.0
D	11.0	24.0	4.0
<u>Alberto</u>			
CP	97.0	95.0	97.0
CN	0.0	0.0	0.0
PP	31.0	6.0	17.0
PN	0.0	2.0	0.0
CF	42.0	53.0	51.0
D	8.0	8.0	11.0
<u>Isabel</u>			
Cp	90.0	90.0	60.0
CN	0.0	0.0	10.0
PP	43.0	16.6	23.0
PN	3.3	0.0	0.0
CF	30.0	23.0	6.6
D	30.0	76.0	26.0

Note. CP (child positive), CN (child negative), PP (parent positive), PN (parent negative), CF (corrective feedback), D (directives).

not paying attention during tutoring sessions and becoming bored towards the end.

All parents expressed a desire to tutor their child again if the need came up, and they also felt that all parents should tutor their children. In addition, 100% of the parents expressed that it had been a positive experience for them and their child. Four of the parents indicated that they had become more familiar with what their child was capable of. When asked to identify something positive that happened two mothers said they got to spend time together and two indicated that the sessions sometimes culminated in them playing together. Although 100% of the parents felt that the procedure was not difficult, implementation of the procedure varied across parents due to work schedules, family activities, and attending to the needs of younger siblings.

A consumer satisfaction questionnaire consisting of five questions was also completed by the students. Most of the children indicated that they enjoyed when their mothers taught them letters and numbers. All the children felt that their mothers had helped them learn the letters and the numbers. All the children also indicated that other kid's parents should teach them letters and numbers and said they would do it again. At least half of the children added

without prompting that they liked it because they got to spend time with their mother.

Chapter 5

Discussion

Several question regarding the use of a parent involvement strategy with Hispanic parents and their children were addressed in this study. Results generally support the hypotheses that a) Hispanic mothers would implement an academic intervention, b) the parent-implemented intervention would result in reading and math readiness gains for the children in the study, c) the parent- implemented intervention would result in collateral benefits for children and parents, and d) both parents and students would be satisfied with their participation and implementation of the intervention.

Overall the present study supports previous findings which suggest that parental involvement in children's education has a positive impact on children's academic and non academic behaviors (e.g., Christenson, et al, 1992a, 1992b). However, this investigation has expanded on previous research by including Hispanic parents and their children, and by empirically validating the effectiveness of the intervention with young children as well as evaluating directly the secondary effects of a parent intervention. This study also differs from others in that it collected procedural integrity data as well as consumer satisfaction

data, factors which can be highly relevant in the use and monitoring of the effects of a home intervention. This study is different too in that it conducted classroom observations as a direct measure of the effects of the intervention on the classroom behaviors of the students, whereas previous studies had used only teacher ratings.

Treatment Integrity

A question addressed in this study was whether Hispanic parents, when given training, would implement an academic intervention with their kindergarten child. Results of this study indicated that although some problems were noted across all participants, regardless of educational attainment, family structure, and English language proficiency parents were able to implement a procedure with acceptable levels of integrity. The most common problem related to integrity was the number of times the intervention was implemented. While some parents implemented the procedures the number of times specified during training (four times per week), most did not. The mother of one child (Maria), implemented the intervention more than the four times required. The mother of two of the children (Alberto and Isabel) implemented it less than the required time with an average of about twice per week. Different things prevented the parents from implementing the

intervention the number of times required (illness, work schedules, demands of attention presented by siblings, competing summer activities).

A second problem noticed during analysis of integrity data was that parents deviated somewhat from the original instructions. This occurred even when booster sessions were occurring on a regular basis. Specifically, mothers were not always saying a word with the unknown letter, or in other cases parents were not praising the child after correct responding, nor following the error correction procedure presented during training. Regarding the latter it was difficult to determine in every instance whether the mothers had the child trace the letter/number or not. This could be due to the fact that audio taping (as compared with video taping) is not very sensitive to certain behaviors. Regardless of these problems children did learn and gains of both letters and numbers were evident for all the children.

Letters Known (LK)

An important finding of the parental involvement research is that, when parents got involved in the education of their children, academic achievement improved (Christenson et al., 1992a, 1992b). In this study it was hypothesized that children would improve in their reading and math readiness. Data were analyzed using ordinary least

squares regression slopes, effect size, and percentage of non overlapping data. Findings of these analyses clearly indicate support of previous research that parental involvement improves academic achievement (Eiserman et al., 1990; Hannon, 1987; Leach & Siddall, 1990; Thurston & Dasta, 1990). All participants showed increases in their knowledge of letters from baseline to intervention, which were maintained at follow-up. Slope changes revealed that intervention increased their learning and acquisition after introduction of the intervention. Effect size analyses which specifically evaluated the magnitude of the changes in standard deviation units indicated substantial changes in their knowledge of letters from baseline to intervention. These effects were present for all students.

Numbers Known (NK)

Data on NK lend further support for the effects of the parent-implemented intervention. Slope values indicated increases in the knowledge of numbers and considerable effect sizes changes for all children in the study. As with LK, all of the children showed improvements in their knowledge of numbers from baseline to intervention, which were also maintained at follow-up. For one child (Ariana), data analyses revealed somewhat weaker effects. Ariana moved between parents and grandparents at least once during the

intervention phase. She also moved out of the district in which the study was being conducted toward the last 2 weeks of school. This child's mother reported that tutoring with numbers was discontinued due to apparent child confusion when both tasks were presented together. Slope values indicated a small increase from baseline to intervention phase. Effect size was also small for this child but indicated that, even with a short duration of tutoring with numbers some learning did occur.

Slope values calculated for the control children show small growth comparable to baseline slopes of the experimental children, providing further support that the intervention was responsible for the positive changes observed. Important to note is that, while all experimental children made substantial gains, Maria's result are unique in that her mother had the lowest educational attainment and she was not fluent in the English language.

The positive effects of the parent-implemented intervention on learning may be explained by the fact that using parents as tutors may increase opportunities to respond. Working with parents may increase the amount of time students spend actively engaged with a task and thereby facilitate mastery of the material (Brodén, Beasley, & Hall, 1978).

Collateral Effects

Research which has evaluated the effects parent involvement has concluded that, in addition to achievement gains children's non academic behaviors also improve. (Christenson et al., 1992b). In this study several collateral effects were investigated.

Classroom behaviors. It was hypothesized that the classroom behaviors of the participants would improve after implementation of the parent-implemented intervention. Direct observations of student's behaviors were conducted during baseline and again at the end of the school year. Results of these data show improvements in overall classroom behaviors. For all participants, on-task behaviors increased and off-task behaviors decreased. More specifically, children's passive engagement increased. So although they were not actively participating more (hand raises, oral responding), data showed they were more attentive and engaged in the classroom instruction. It is possible that this increase was due to the fact that after the mothers had taught the children some of the classroom curriculum, there was a better instructional match and the material being presented in school became more relevant. Also the increased task engagement may be attributed to increased motivation resulting from increased success in the

curriculum (Wilson & David, 1994).

Teacher ratings of academic behaviors. To further assess the collateral effects of parent participation on students, teachers were asked to complete this rating scale at the beginning of the study, prior to intervention, and again at the conclusion of the study. Results of this assessment indicated that teacher ratings of children consistently improved on two categories "Is alert and attentive", and "Is learning academic subjects. Although improvements were not seen on all categories, overall these are supportive of the observational data and rule out alternative explanations such as reactivity to the experimenter. It is possible that the reason why other categories did not improve is because essentially these children, despite gains, were still considered as lagging behind when compared to their peers. So on items such as "Achievement is appropriate for age and grade" teachers felt their achievement at the end of the year was still not appropriate for their age and grade. Such terminology (i.e., achievement is appropriate) may not be sensitive to gradual improvements.

Self-Esteem Parental involvement has been positively correlated with self-competence and self-esteem (Astone & McLanahan, 1991). It was hypothesized in this study that

children's self-esteem would improve following participation in the home intervention. Students were administered the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter & Pike, 1984). This scale, which follows a multidimensional view of the self concept (versus a unitary or global view) was administered prior to the intervention and again at the end the conclusion of the study. Findings show increased scores following the parent-implemented intervention. More specifically, scores on the cognitive competence subscale improved for all the students. It was anticipated in the present study that cognitive competence subscale would increase, while the others would remain the same (since no intervention was being provided related to other domains). This was not supported by the results. Improvements (although not as consistent) were seen across all the subscales for at least five of the six students on the peer acceptance scale, four of six on the physical competence scale, and four of the six on the maternal acceptance scale.

It appears that, although this parent-implemented intervention targeted academic skills, it had an effect on multiple dimensions of self-concept. In the present study it may be difficult to separate one domain from the other and to expect unilateral changes given the ages of the

children and the nature of the study. One may consider the mechanism or process thought to be responsible for self-concept change (Harter, 1990). For example, positive self-image changes that result from a child participating in a remedial education program may have as much to do with the individualized attention given to the child as with the particular academic content. In the present study, mothers were not only teaching the child a needed skill, they were also spending additional time with the child which may explain why the maternal acceptance scale might have improved. For two of the children in the study, maternal acceptance did not improve (Carmen and Ariana). Interestingly mother-child interaction data yielded the highest negative parent interactions were for these two children. Peer acceptance might also improve as a result of the children feeling that they more closely resembled their comparison peer group after their achievement improved (Harter, 1990).

In summary it is safe to assume that changes in one domain of self-concept may have led to changes in the other domains, especially for the particular age group of the children in the study. This may be at least partially explained by the fact that the structure of young children is less differentiated and they may not make as clear a

distinction as older children (Harter, 1990).

Attitude toward school. It was originally hypothesized that children's attitude towards school would improve as a result of participation in the intervention. Students completed the form "My school feelings" at pre and post intervention. There were slight improvements noted for all children. Overall results, however, showed that children generally had positive feelings about school even at baseline. An important problem confronted in this area was the lack of reliable measures. The experimenter-constructed measure used in present study provided children with items in which they had to pick a happy or a sad face. Perhaps a numerical Likert-type scale would have provided more meaningful information.

Parental attitudes. Becker and Epstein (1983) and Epstein (1988) provide support for the notion that efforts on the part of school to involve parents in learning activities at the home result in positive parental attitudes about the child's school and their teachers. In this study parental attitudes toward school, child's performance, and child's education were investigated using one measure, and it was hypothesized that these attitudes would improve as a result of participation in the training and implementation of an academic intervention at home. It was anticipated that

the mothers in the study would view the child's abilities more positively, and view the school and the education more positively. Findings showed improvements in some areas. For example, rating of child's school performance improved for at least four of the six students. By being involved in the tutoring, mothers apparently witnessed first hand that learning was taking place. Parent's ratings of teachers and quality of education also improved from pre to post intervention. It appeared that mothers in the study generally increased their understanding of school at the conclusion of the study. It is possible that when mothers were involved in the tutoring of their child they became more aware of the child's learning behaviors (i.e., attention span, memory and retention of taught material) and consequently developed a greater appreciation of the teachers. There is some tendency to also consider that higher ratings could be attributed to parents perceiving the experimenter as an extension of the school.

Parent-child Interactions. Research which has evaluated the interactions between mothers and their children during structured task situations have found that the possibility of parent-child conflicts exist, especially with younger children (Barkley, Karlsson, Pollard, & Murphy 1984; Barkley, Karlsson, Strzelecki, & Murphy, 1984).

Although no specific hypotheses were formulated regarding mother-child interactions, these were assessed and monitored throughout the study. Data evaluating these interactions revealed some important findings. Specifically, it was found that the behaviors of children and parents changed as the study progressed. Children's positive behaviors decreased over time, while parent negative behaviors and corrective feedback increased as the study progressed. Children's positive behaviors (which included responding to the stimulus card presented by the mother) decreased. This does not indicate that children were exhibiting more negative behaviors, but rather they were not responding to the letter/number presented, or they were not saying the right letter/number. It is possible that this lack of response triggered the parent negative behavior to occur. In other words negative parent behavior may have increased in response to the decrease in responding on the part of the child. It also may be that children's lack of responding produced more corrective feedback on the part of some. The particular measure employed was not sensitive to errors made by the children. However anecdotal information indicated that parent's negative behaviors resulted from the child not saying the letter or number presented because they forgot, or saying the wrong letter.

Interestingly it appeared that children's negative behaviors (whining, complaining), produced more positive parent behaviors (i.e., encouragement) For example, when a child complained, "I'm tired, I don't want to," the parent used encouragement "You can do it," "let's try one more time," "you are so smart", etc. However when the child appeared to have forgotten or said the wrong letter, mothers responded more negatively "how many times do I have to repeat this," followed by corrective feedback (providing the correct letter or number).

In addition to providing parents with training on specific procedures, other variables need to be taken into consideration . First it is possible that for some parents this type of training was not sufficient and they needed additional behavior management training, since the task of teaching their child represented a new role for them or a totally unfamiliar one. Second, family background may need to be taken into account. Studies have indicated that maternal behavior is influenced by task demands as well as distal variables such as maternal self-esteem and parenting stress (Mash & Johnston, 1983). Although these factors were not assessed in the present study, it is possible that they might have played a key role here. The cases of Ariana and Carmen which showed the highest negative parent

behaviors illustrate this. Ariana and Carmen were the oldest of three and four children in the household, respectively. These two mothers were the youngest who also had changing work schedules. Thus it is possible that external demands along with the demands of the study represented stress for the mothers and consequently impacted on their tutoring behaviors. Parental behaviors/characteristics of Hispanic mothers in general has not been adequately addressed in the research. More research is needed which will broaden the understanding and knowledge base. As for this study, it appeared that age of mother and stress may have been influential factors.

Laosa (1982) also evaluated the effects of amount of schooling on the tutoring behaviors of Hispanic mothers and concluded that educational background improves the quality of parental tutoring interactions. This, however, was not the case in the present study. For example, Maria's mother had the lowest educational attainment, having completed only the 7th grade, she was also the oldest mother, indicating that perhaps age of mother was more influential than schooling in this study. Similar results were found the Lopez and Cole (submitted) study.

Consumer Satisfaction. A hypothesis presented in this study was that parents and their children would express

satisfaction towards their involvement and participation with the procedure. Overall consumer satisfaction ratings of the intervention by students and parents were positive. All parents indicated they enjoyed helping their children learn letters and numbers, and felt that they had been helpful in their children's learning. The greatest concern centered around the time required to implement the intervention. At least four of the six parents indicated they had difficulty finding time to implement the intervention. Another problem reported was that, for some, there were minor difficulties with child cooperation on 100% of the tutoring sessions and with the child paying attention, something which the parents associated with the child becoming bored toward the end of the study.

Overall parents reported they enjoyed the experience. Some of the positive aspects of the intervention reported were that they got to spend much needed time together and that on occasion the tutoring session ended with them playing together. Some of the parents also indicated their participation in tutoring their child allowed them to get to know their child better and to become more familiar with their child's capabilities, something which they associated with becoming proud of their child. Although 100% of the parents indicated the procedure was easy, it is important

to remember that not all implemented the intervention the number of times required, thus this varied across pairs.

Results from children's consumer satisfaction measure were similar to those of the parents. All of the children except one indicated they enjoyed when their mothers taught them letters and numbers, and that their mother had helped them learn the letters and the numbers. One incidental finding gathered from the children's consumer satisfaction information was least half of the children volunteered without prompting that the thing they liked the most was that they got some individual and special time with their mothers.

Limitations and Implications for Future Research

Although gains and improvements were evident not all children reached the desired criterion of mastering all 52 upper and lower case letters and numbers from 0-20. In fact, only one child reached this criterion and a second child learned all the numbers but not all the letters.

In a previous study conducted by Lopez and Cole (submitted) only one skill area was manipulated (e.g., letters). In that particular study, all the children learned more letters and reached a higher achievement level in approximately the same number of sessions than those in the present study. Other studies which have utilized parents

as intervention agents have also targeted only one skill area at a time (Hannon, 1987; Leach & Siddall, 1990; Tizzard et al., 1982). Even in those studies which have evaluated parent tutoring on more than one skill area, tutoring was conducted with only one skill at a time (Koven & Lebow, 1973; Thurston & Dasta, 1990). It may be that introducing more than one skill at a time makes the intervention more cumbersome for parents and so tutoring of a second skill is done with less integrity, making one of the skills suffer at the expense of the other. Anecdotal information from parents indicated that, although they tutored both, they seemed to have concentrated on one skill. This varied across parents with some concentrating on the letters, while others concentrated on the numbers. Future studies should consider tutoring of one skill until a pre specified criterion is met, prior to introduction of a second skill.

The number of times per week that the intervention was implemented is also a matter of concern in the present study. Integrity data as well as consumer satisfaction data indicated that, while some parents implemented the intervention the specified four times per week, others implemented it approximately two times each week, thus limiting the number of letters and numbers that were introduced on a weekly basis. Because the ultimate goal was

for each student to learn 52 letters and 21 numbers, this resulted in the intervention being extended beyond the end of the school year. As reported by parents, many of the children were getting bored toward the end of the study. Parents may also have been getting tired as data from parent-child indicated that the behaviors of both appeared to be deteriorating somewhat over the course of the study. Despite this limitation, children made significant gains indicating that even with only two sessions per week learning can occur. Future studies need to determine the optimal amount of time needed for learning and achievement to occur. Given the time constraints of today's families, such information will be valuable to the field of parent tutoring.

Related to this is the issue of treatment integrity. In the present study it was determine that, while the measures of integrity were scored at acceptable levels, variation between parents was found. Parents generally did not implement all steps as indicated in tutoring and booster sessions. Because learning occurred despite these variations in procedures it is important for future studies to evaluate interventions of different degrees of complexity. It is possible that interventions with fewer steps may be suitable and can result in gains.

In the present study parent-child interactions were monitored at different stages once the intervention was initiated. Since baseline data were not collected on these parent-child behaviors, it cannot be determined if the findings indicate an improvement over typical mother-child interactions or whether these were fairly typical behaviors of these mother-child dyads. Further, it cannot be determined whether the present data actually represented a deterioration in parent-child interactions as a result of their participation in the study. Because baseline data were not collected the type of inferences which can be made from these data are limited. The only inference that can be made is that as the study progressed child-positive behaviors decreased, parent-negative behaviors, corrective feedback, and directives increased for a majority of the mother-child dyads possibly as a result of an extended tutoring process. These data show that the potential for problems does exist, and that some parents may need more information regarding ways in which they can deal with behavior problems when and if they do occur. Therefore the study of parent-child behaviors during tutoring is an area that cannot be ignored. Future research may need to evaluate parent tutoring of academic skills in conjunction with behavior management strategies.

Another limitation of the present study relates to the collateral measures used with this particular age group. Although the Perceived Competence Scale and Social Acceptance (Harter & Pike, 1984) has been used with kindergarten children, other measures (i.e., attitude towards school) have not been researched. The present study utilized an experimenter-developed questionnaire which limited the inferences that could be made from these results.

A final limitation of the present study related to its lack of assessment of collateral effects with control students. Assessment of collateral effects with these subjects might have strengthened the study. Had assessment of collateral effects been conducted and no improvements been found, changes seen with the experimental children would have provided greater support for the effects of the intervention on these effects. It may have also ruled out alternative explanations (such as history and maturation) for the improvements seen. Because of this problem and other problems related to some of the measures (i.e., attitudes toward school), the effects of parent tutoring on collateral effects needs to continue to be researched.

Implications for Practice

There are several implications of this study for school

psychologists attempting to implement parent-implemented interventions with Hispanic children. First, Hispanic parents can be solicited to assist in the education of their children who are exhibiting delays in their acquisition of needed skills. Parents can be of varying ages and have various educational backgrounds. It is important, however, when soliciting help from parents that adequate training is given in the tutoring procedures. In addition some parents need to receive information regarding the structure within which to present this intervention along with behavioral management strategies. It also may be important for professionals requesting the assistance of parents to be sensitive to time demands placed on parents and remain flexible so as to accommodate busy parents who may have additional stresses to deal with.

Finally due to some research findings regarding parent-child interactions, especially with young children, it may still be necessary to monitor mother-child interactions. Because some evidence exists which indicates that distal variables such as depression and stress can influence parent child interactions during tutoring (Mash & Johnston, 1983) efforts need to be made so that appropriate support can be provided parents and tutoring can be modified if necessary.

Conclusions

Despite some of the limitations found in the present study several overall conclusions can be made. Results of this study indicated that Hispanic parents can successfully assist in the education of their children. In doing so, they can help their children achieve better in school which may in turn lead to other secondary benefits. Specifically, it appears that this type of involvement can lead to children exhibiting better classroom behaviors and feeling better about themselves. Wilson and David (1994) describe the mechanism by which parental involvement may improve achievement and behaviors, and explain that getting more support at home in areas of weakness and the consequent success results in increased motivation to learn and exhibit more desirable classroom behaviors. Laosa (1982) provides additional support for this conceptualization and adds that when parents get involved in learning activities at the home, they provide some continuity between the home and the school. This continuity may well lead to higher academic achievement (Hansen, 1986). In other words, what is being valued at school begins to be valued at home providing children with some consistency between the home and the school. Epstein (1988) also suggested that parent's involvement may convey to children the importance of education which may lead to more responsible and independent

behavior in school.

Overall tutoring children at home appears to be good for children and parents as well. Parents who are otherwise busy are placed in a position which requires they spend time with their child. It gives them the opportunity to contribute to their children's learning and, in doing so, feel proud about their child and become more familiar with their children's capabilities. In addition they better understand their child's learning behaviors, something which may in turn increase their knowledge and appreciation for what goes on in school and for the teacher.

Results of this study show that, despite the benefits, more work is needed to make parental involvement (and more specifically parental tutoring) more attractive and more suitable to parents. Specifically, we may need to provide parents, not only with the strategies needed to improve specific skills, but also a structure within which to implement the tutoring. An example of a structure may be tutoring for 5-10 minutes, followed by break and reward, and then possibly ending with self-charting of the child's progress. Training in behavior management strategies may also need to be part of the training programs. It is hoped that future research will evaluate additional parent-implemented strategies such as these to determine an optimal

combination of components for both parents and children.

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Appendix A

Eligibility Screening Form

Child's Name: _____ Language Spoken at Home: ____

Parent/Guardian's Name: _____ Ethnic Background: _____

- | | | | |
|----|--|-----|----|
| 1. | Were You born in the United States? | Yes | No |
| | Nacio usted en los Estados Unidos? | Si | No |
| 2. | Were You raised in the United States? | Yes | No |
| | Fue criado usted en los Estados Unidos? | Si | No |
| 3. | Have you ever visited you country of origin? | Yes | No |
| | Ha visitado usted su pais de origen? | Si | No |
| 4. | Do you Speak Spanish? | Yes | No |
| | Habla usted Espanol? | Si | No |
| 5. | Do you identify yourself as Hispanic/ Latino? | Yes | No |
| | Se identifica usted como Latino o Hispano? | Si | No |
| 6. | Do you know the letters of the alphabet? | Yes | No |
| | Conoce usted las letras del abecedario? | Si | No |
| 7. | Do you recognize and can name the numbers | | |
| | from 0-20? | Yes | No |
| | Conoce usted los numeros y puede usted nombrar los | | |
| | numeros del 0-20? | Si | No |

8. Are you willing to spend 20 minutes each day helping your child learn the letters of the alphabet and numbers from 0-20? Yes No

Esta usted dispuesto a aydar a su nino/nina aprender las letras del abecedario y los numeros del 0-50 aproximadamente por 20 minutos diario?

Si No

9. Can you provide a quite area where you can help your child learn the letters of the alphabet and the numbers from 0-20? Yes No

Puede usted proveer un lugar en su casa en el cual usted pueda ayudar a su nino/nina aprender las letras del abecedario y los numeros ?

Si No

10. In order to participate in this study it is required that you participate in a trianing session for approximately one hour. The training session can take place at you home or at the school. Will you participate in this training session?

Yes No

Para poder participar en este estudio, se requiere que usted participe en un entrnamiento de aproximadamente una hora de duracion. Esta usted dispuesto a participar en este entrenamiento?

Si No

Appendix B

Integrity checklist

Letters

1. Pick three unknown letters _____, _____, _____
2. Pick 7 known letters _____, _____, _____, _____, _____, _____, _____
3. Sandwich unknown letters with known letters (3rd, 6th, 7th position).
4. Present all flashcards
5. Stop at each unknown letter and say the letter and a word that begins with the unknown letter
6. Have child trace with finger
7. Present all flashcards in order 5 times
8. verbally reward correct responses.
9. Place a checkmark on the card each day the child can identify the letter.
10. Take old known and replace with new unknown

Numbers

1. Pick 3 unknown numbers _____, _____, _____.
2. Pick 7 known numbers. _____, _____, _____, _____, _____, _____, _____
3. Sandwich unknown numbers with known numbers (3rd, 6th, and 7th position).
4. Present all flash cards
5. Stop at each unknown say the number and have the child count pictures of objects representing the number.
6. Have the child trace the number with the finger.
7. Present flash cards in order 5 times
8. Verbally reward correct responses.
9. Place a checkmark on the card each day that the child can identify card.
10. Take old known and replace with new unknown.

Appendix B

Intervention Checklist

(Spanish)

Letras

1. Escoja 3 letras desconocidas _____, _____, _____
2. Escoja 7 letras conocidas _____, _____, _____, _____, _____, _____, _____
3. Mezcle las letras conocidas con las desconocidas
4. Ensene las tarjetas con letras conocidas y desconocidas.
5. Detengase en la desconocida, diga la letra y diga una palabra que comienza con esa letra.
6. Haga que el niño escriba la letra con el dedo.
7. Presente las tarjetas 5 veces o hasta que el niño pueda identificar las letras con facilidad.
8. Reompense al niño verbalmente por respuestas correctas.
9. Ponga una marca en la tarjeta desconocida cada día que el niño pueda identificarla con facilidad.
10. Reemplaze una conocida con otra desconocida.

Numeros

1. Escoja 3 numeros desconocidos _____, _____, _____
2. Escoja 7 numeros conocidos _____, _____, _____, _____, _____, _____, _____
3. Mezcle las tarjetas conocidas con las desconocida
4. Ensene las tarjetas con los numeros conocidos y desconocidos.
5. Detengase en la desconocida y diga el numero y haga que el niño cuente hasta ese numero.
6. Haga que el niño escriba el numero con el dedo.
7. Presente las tarjetas 5 veces o hasta que el niño pueda identificarla con facilidad.
8. Reompense al niño verbalmente por respuestas correctas.
9. Ponga una marca en la tarjeta cada día que el niño pueda identificarla con facilidad
10. Reemplaze una conocida con otra desconocida.

Appendix c

Letters Probe

<u>A</u>	<u>G</u>	<u>e</u>	<u>c</u>	
<u>b</u>		<u>i</u>		<u>D</u>
<u>a</u>	<u>J</u>	<u>i</u>	<u>d</u>	<u>k</u>
<u>F</u>	<u>a</u>	<u>c</u>	<u>E</u>	<u>f</u>
<u>Q</u>	<u>h</u>	<u>U</u>	<u>O</u>	<u>R</u>
<u>p</u>	<u>K</u>	<u>x</u>	<u>U</u>	<u>l</u>
<u>V</u>	<u>s</u>	<u>a</u>	<u>Y</u>	<u>m</u>
<u>z</u>	<u>N</u>	<u>H</u>	<u>n</u>	<u>o</u>
<u>P</u>	<u>t</u>	<u>z</u>	<u>I</u>	<u>L</u>
<u>v</u>	<u>x</u>	<u>s</u>	<u>u</u>	<u>W</u>
<u>T</u>	<u>z</u>	<u>M</u>	<u>y</u>	<u>w</u>

Appendix C

Numbers Probe

7	6	4	14
1	17	10	
13	11		15
20	2		5
12	8	3	
19	18	9	16

Appendix D

B.O.S.S.

Behavioral Observation of Students in Schools

Child Observed: _____
 Date: _____
 Observer: _____
 Time of Observation: _____

Academic Subject: _____
 Setting: ISW:TPant SmGp:TPant
 ISW:TsmGp LgGp:TPant
 Other: _____

Moment	1	2	3	4	5*	6	7	8	9	10*	11	12	13	14	15*	S	P	T
AET																		
PET																		
Partial																		
OFT-M																		
OFT-V																		
OFT-P																		
TDI																		

Moment	16	17	18	19	20*	21	22	23	24	25*	26	27	28	29	30*	S	P	T
AET																		
PET																		
Partial																		
OFT-M																		
OFT-V																		
OFT-P																		
TDI																		

Moment	31	32	33	34	35*	36	37	38	39	40*	41	42	43	44	45*	S	P	T
AET																		
PET																		
Partial																		
OFT-M																		
OFT-V																		
OFT-P																		
TDI																		

Moment	46	47	48	49	50*	51	52	53	54	55*	56	57	58	59	60*	S	P	T
AET																		
PET																		
Partial																		
OFT-M																		
OFT-V																		
OFT-P																		
TDI																		

	Target Student		Peer Comparison		Teacher
	S AET	—	% AET	—	S TDI
	S PET	—	% PET	—	% TDI
Total Intervals	S OFT-M	—	% OFT-M	—	Total Intervals
Observed	S OFT-V	—	% OFT-V	—	Observed
	S OFT-P	—	% OFT-P	—	

Behavioral Definitions for Behavioral Definitions for the B.O.S.S

Categories Scored when the interval begins

1) Active Engaged Time (AET): the student is Attending to the assigned work:

- WRITING
- RAISED HAND
- READING ALOUD
- ANSWERING QUESTIONS
- TALKING CONCERNING ACADEMICS

2) Passive Engaged time (PET):

- READING SILENTLY
- LISTENING TO THE TEACHER
- LISTENING TO PEERS
- LOOKING AT THE BLACKBOARD DURING TEACHER INSTRUCTION
- LOOKING AT ACADEMIC MATERIALS

Categories scored any time during the interval

1) Off task motor

- ANY OUT OF SEAT BEHAVIOR
- BEHAVIOR INVOLVING MOTOR CONTACT
- FLIPPING THROUGH PAGES
- DRAWING OR WRITING NON-ACADEMIC MATERIAL

2) Off task verbal

- TALKING TO OTHERS ABOUT UNRELATED MATERIAL
- WHISTLING, HUMMING
- PERSONAL COMMENTS OR REMARKS
- LAUGHING THAT IS NOT APPROPRIATE TO THE SITUATION

3) Off task passive

- STARING OUT THE WINDOW
- SITTING QUIETLY IN UNASSIGNED AREA
- DAYDREAMING

Appendix E

Teacher Rating of Academic Behavior

Please Rate the child on the following School Behaviors

1=never; 2=sometimes; 3=most of the times;4=all of t

1. Is able to begin and complete classroom tasks

1 2 3 4

2. His/her academic achievement is appropriate for grade
and age

1 2 3 4

3. Is alert and attentive to classroom instruction

1 2 3 4

4. Attention span is appropriate for age and grade

1 2 3 4

5. Completes work on time

1 2 3 4

6. Is eager and enthusiastic about classroom activities

1 2 3 4

7. Enjoys school work

1 2 3 4

8. Follows directions

1 2 3 4

9. Willingly participates in classroom activities

1 2 3 4

10. Is learning academic subjects

1 2 3

Appendix F

Attitude Toward School

My School Feelings

This is how I feel:



When I am in school



When Learning My ABC's



When learning numbers



About my Teacher



My school Work



Appendix G

Parental Attitudes Survey

We would like to know some of your opinions about _____'S education.

1. How much education do you want your child to receive?

- a. High school
- b. Technical school
- c. College

2. How would you describe your child's overall school performance?

- A. Poor
- b. Average
- c. Fairly Good
- d. Very good

3. How well do you expect your child to do in school this year?

- A. Poor
- b. Average
- c. Fairly well
- d. Very well

4. How satisfied would you say you are with the school that your child attends?

- A. Dissatisfied
- b. Somewhat satisfied
- c. Very satisfied

5. How much do you think your child is learning?

- A. Nothing
- b. A little
- c. A lot

6. How much time do you currently spend going over school materials?

- A. Not much
- b. A little
- c. A lot

7. How much fun do you think your child is having in school?

- A. Not much
- b. A little
- c. A lot

For the following Items please circle the number that best describes your opinion

4=Strongly agree; 3=Agree; 2=Disagree; 1=Strongly disagree

8. In my child's school there is enough homework: 4 3 2 1

9. There is enough discipline 4 3 2 1

10 Teachers are very friendly 4 3 2 1

11. Teacher's seem to be interested in _____ 'S education.
4 3

2 1

12. I feel welcome 4 3 2 1

13. I get enough information about how my child is doing
4 3 2 1

14. I get information on how to help my child 4 3 2 1

15. Parents should help children with their school work.

- A. Agree
- B. Disagree

Appendix H
Consumer Satisfaction Questionnaire

1. I enjoyed helping my child learn the letters of the alphabet and the numbers from 0-20.
Disfrute ayudar a mi nino a aprender las letras del abecedario y los numeros del 0-20:
Si
Yes No
2. I helped my child learn letters of the alphabet and the numbers from 0-20:
Pienso que ayude a mi nino/nina a aprender letras del abecedario y los numeros del 0-50.
Si
Yes No
3. My child enjoyed learning letters and the numbers with me :
Mi nino/ nina disfruto aprender las letras y los numeros conmigo:
Si
Yes No
4. It was difficult for me to find time to work with my child:
Fue dificil para mi encontrar el tiempo necesario para estudiar con mi nino/nina:
Si
Yes No
5. Please describe any problems that came up during the tutoring sessions:

Por favor describa algun problema o dificultad que haiga surgido cuando estaba ensenandole las letras a su nino/nina:
6. I would like to tutor my child again if the need came up:
Me gustaria ayudar a mi nino/nina otravez si asi fuese necesario:
Si
Yes No
7. I would talk to other parents about tutoring their children:
Le hablaria a otros padres acerca de ayudarle a sus ninos:

- Si
- Yes No
8. This was a pleasant and positive experience for me and my child:
 Esta fue una experiencia positiva para mi y mi nino/nina.
- Si
- Yes No
9. This was an unpleasant and negative experience for me and my child:
 Esta fue una experiencia negativa y desagradable para mi y mi nino/nina:
- Si
- Yes No
10. Describe positive things that happened if any:
 Describa algunas cosas positivas que surgieron:
11. The procedure explained to me by Amelia was difficult to follow:
 El procedimiento explicado por Amelia fue dificil de implementar:
- Si
- Yes No
12. Please indicate how many times per day did you work with your child:
 Por favor indique cuantas veces al dia usted trabajo con su nino/ nina:
- 1 2 3 4 5
13. Please indicate how many times per week did you work with your child:
 Por favor indique cuantas veces por semana trabajo usted con su nino/nina:
- 1 2 3 4 5

Appendix H
Children's Consumer Satisfaction

1. I enjoyed when my mother taught me letters and numbers



2. My mother helped me learn letters and numbers



3. I think other kid's parents should teach them letters
and numbers.



4. Studying letters and numbers with your parents is a good
idea.



5. I would study with my mother again.



Appendix I
Observation Code Definitions
for Parent-child interactions during tutoring

Child Positive: (CP) Compliance with task presented;
responding to parent commands.

Child Negative: (CN) Non compliance, complaining, whining.

Parent Positive:(PP) Praise, statements of approval,
encouragement

Parent Negative: (PN) Reprimands, statements of disapproval.

Corrective Feedback (CF) Parent provides correct letter
or number when child does not know the
answer

Directives (D) Parent gives the child directions (i.e., sit
down, repeat the letters/numbers, trace
letter/number)

Amelia Lopez

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Education: Currently enrolled in the Ph. D
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Awards Held:

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1991-1993 Lehigh University Minority
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1993-1994 Lehigh University Minority Fellow

Professional Experiences:

September 1993-1994 School Psychology Practicum
School District of the City of
Allentown
Allentown , PA.

September 1994-
present School Psychologist
School District of the City of
Allentown
Allentown, PA.

Responsibilities: Conduct

assessments with children identified as having academic or behavioral difficulties. Serve as consultant to instructional support team. Develop and implement interventions for children with academic, behavioral or social problems. Prepare and conduct presentations to educational personnel on issues related to language behavior and culture of the Hispanic child. Assist in the development and implementation of parent-school partnership programs design to enhance academic achievement of Hispanic children. Consult with families of children experiencing academic and\or behavioral difficulties.

September 1992-
May 1993

Lehigh University
Bethlehem, PA
Psychology Department

Position: Teaching Assistant
Responsibilities: Taught recitation for the Introductory Psychology courses to undergraduate students.

September 1984-
June 1991

Upward Bound Program
East Stroudsburg University
East Stroudsburg , PA 18301

Position: Assistant
Director/Counselor

Responsibilities: Provide Counseling to students with personal or academic problems. Coordinate inservice programs for students. Develop and implement career education programs. Develop, administer and interpret

needs assessment inventories for the purpose of determining and communicating academic and vocational needs to other staff members. Administer and interpret interest inventories for the purpose of career counseling. Liaison between students, families and schools. Responsible for interviewing and selecting residential staff.

November 1982-1984

School District of the City of Allentown
Allentown, PA 18102.

Position: Elementary School Guidance Counselor
Responsibilities: Provide individual and small group counseling to student presenting emotional, social problems. Develop and implement classroom wide counseling programs on various topics such as social skills training, problem solving, self awareness, decisions making. Assist in the delivery of special education services.

Research:

Effects of Parent Implemented Interventions on the Academic Readiness of Hispanic Children.

Presentations:

Lopez, A., Ramirez, R., Shapiro, E.S. "Lessons Learned from the Assessment and Interventions with Hispanic Children"
National Association of School Psychologists Convention,

Orlando, Florida. 1998.

Professional Memberships:

American Psychological Association
National Association of School
Psychologists
Council for Exceptional Children.

References:

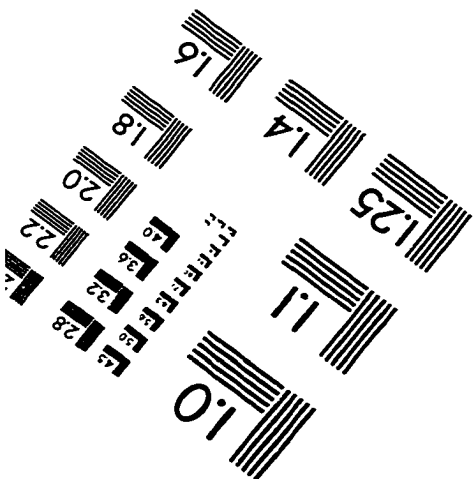
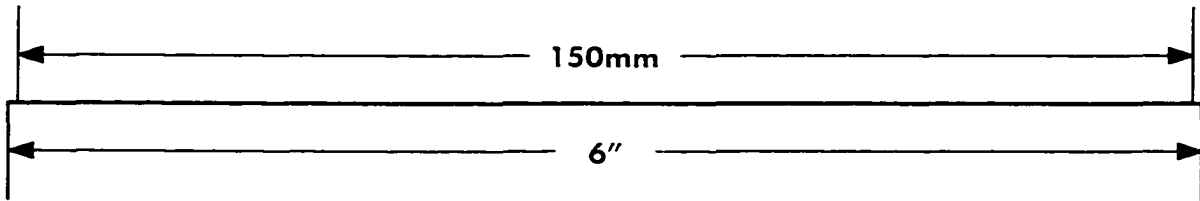
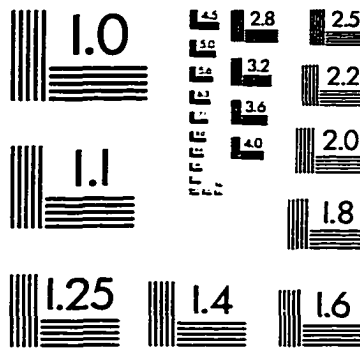
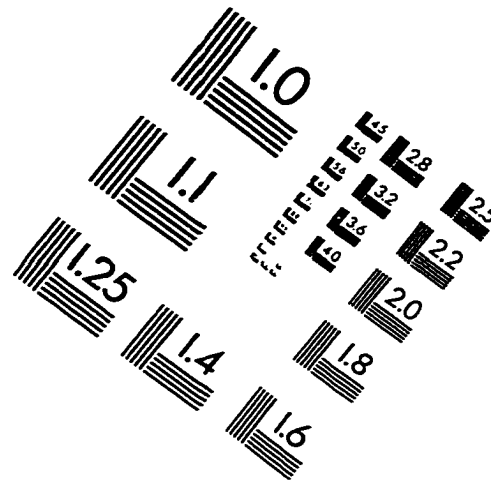
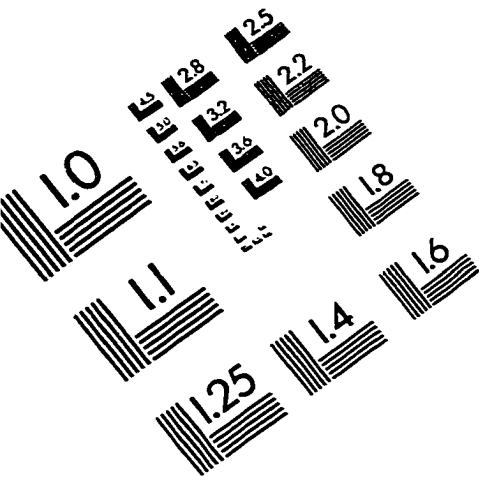
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