The Effects of the Home Instruction Program for Preschool Youngsters (HIPPY) on Children's School Performance at the End of the Program and One Year Later

Amy J.L. Baker
The Children's Village

Chaya S. Piotrkowski
Fordham University

Jeanne Brooks-Gunn
Columbia University

The effectiveness of the Home Instruction Program for Preschool Youngsters (HIPPY)—a two-year, free, home-based, family-oriented, early childhood education intervention—was assessed in a longitudinal, two cohort, randomized experimental evaluation. One hundred and eighty-two low-income families (84 in HIPPY and 98 in the control group) were assessed at baseline, at the end of the program, and one year later. Outcomes included assessments of children's cognitive skills, adaptation to the classroom, and standardized achievement at the end of the two-year program, and classroom adaptation and standardized achievement one year later. Data were collected from objective measures, teacher ratings, and school records. Analyses of covariance were conducted controlling for baseline scores on child and family background variables. Results revealed that for Cohort I there were significant and educationally meaningful differences in children's school performance both at the end of the program and one year later. These results were not replicated in Cohort II. Attrition analyses did not reveal differences between groups and cohorts which would account for the lack of replication. Findings are interpreted as mixed support for the effectiveness of the HIPPY program to improve the chances that poor children will succeed in school.
"By the year 2,000, all children in America will start school ready to learn."
—Educate America Act.

"Success begins at home"
—Avima Lombard, creator of the Home Instruction Program for Preschool Youngsters

In 1990 the President and the nation’s governors established the National Education Goals for the year 2000 to promote and enhance the school success of this nation’s children. An objective associated with these goals is to promote parent involvement and to support parents as their children’s teacher. Underlying this emphasis on parent involvement in their children’s education is the long-standing belief that family characteristics and resources are crucial for children’s school success (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966) and that children’s development is embedded in a series of mutually reinforcing ecological contexts including both the family and the school (Bronfenbrenner, 1979).

That parents play a vital role in their children’s educational development—both prior to formal schooling and over the course of the child’s school career—has been well-established. Specific parenting practices associated with school success include joint literacy activities that encourage children’s independent learning, scaffolding, the use of open-ended questions, and relating written text to children’s real life experiences (Bruner, 1983; Ninio, 1980; Sigel, 1982; Snow, 1983; Whitehurst, Falco, Lonigan, Fischel, DeBaryshe, Valdez-Menchaca, & Caulfield, 1988). More broadly, provision of a stimulating material environment (Bradley, 1995; Bradley, Caldwell & Elardo, 1977) and high expectations for children’s educational achievement (Reynolds & Gill, 1994) have been shown to positively affect children’s cognitive skills, attitudes, and motivation.

Drawing upon this strong foundation in basic research, practitioners and program developers have incorporated parent involvement components into educational intervention programs for children at risk for school failure. Center-based programs such as Head Start, Follow Through, and Parent Child Development Centers embed children’s learning in the context of a supportive and nurturing home environment that can maintain and build upon the skills developed at the center. Evaluations of these and other center-based preschool interventions have demonstrated that participation in an early intervention program can change the achievement trajectory of poor children (e.g., Consortium for Longitudinal Studies, 1983; Gomby, Larner, Stevenson, Lewit, & Behrman, 1995), especially when parents play an integral role in the delivery of the program (Bronfenbrenner, 1974; Brooks-Gunn, Berlin, Fuligni, in press).

Home-based educational interventions, as well, have been developed over the past three decades as a means of involving parents in their children’s education (General Accounting Office [GAO], 1990; Gomby, Larson, Lewit, & Behrman, 1993; Powell, 1990). Large scale national and state-wide home-based initiatives such as the Home Instruction Program for Preschool Youngsters (HIPPY) and Par-
ents As Teachers are predicated on the importance of parent involvement for children’s school success (Pfannenstiel & Seltzer, 1989). Smaller demonstration programs also focus on enhancing skills in preschool children by working in the home with parents (e.g., Brooks-Gunn, Denner, & Klebanov, 1995; Edwards, 1991; Gomby, et al., 1993; Levenstein, 1970; Spiker, Ferguson, & Brooks-Gunn, 1993). Such programs aim to enhance the home learning environment by providing parents with the skills, resources, and confidence to act as their children’s teacher. These programs aim to foster literacy skills, encourage mothers to engage in developmentally appropriate activities with their children, and model reading techniques which will in turn enhance the child’s school-related skills and behaviors. Evaluations of these home-based programs have produced mixed results (Powell, 1990) in part because of variation in program quality and content as well as in evaluation designs. Nonetheless, home visiting has been endorsed as a promising service delivery strategy, especially for reaching poor families and families with young children (GAO, 1990; Gomby, et al., 1993).

This paper presents the results of an evaluation of the Home Instruction Program for Preschool Youngsters. HIPPY is a free, two-year, home-based early childhood education and parent involvement program for parents with limited formal education to provide educational enrichment for their four- and five-year-old children. Currently there are 110 HIPPY programs in the United States serving over 15,000 economically disadvantaged families annually in 29 states and in Washington DC. While nationally disseminated, the HIPPY program had not been evaluated in this country. As a program that is widely implemented, a rigorous evaluation of its effectiveness is clearly warranted.

The study reported here was developed to address this need. This report presents findings of the first longitudinal evaluation of the HIPPY program conducted in the United States, which followed 182 children in one New York HIPPY program from preschool through the beginning of second grade. Consistent with the program’s goals to provide cognitive skills for children, the study assesses the impact of HIPPY on children’s cognitive skills and school performance. This study tested the hypothesis that participation in HIPPY has a positive impact on young children’s cognitive skills, standardized achievement, and adaptation to the classroom, over and above any effect of a high-quality preschool program. By focusing on school performance, we avoided a narrow focus on I.Q. as a measure of success of early intervention programs (Gomby, Lamer, Stevenson, Levitt, & Behrman, 1995; Slavin, 1994; Zigler & Trickett, 1978). This study represents a particularly stringent evaluation of HIPPY because all children in the study were also enrolled in a preschool program.

The HIPPY Program: Features and Rationale

HIPPY was developed in 1969 at the National Council of Jewish Women’s Research Institute for Innovation in Education of Hebrew University. The design of HIPPY was based on available research on early intervention programs and children’s school success (Lombard, 1981). HIPPY is currently a national program in Israel, disseminated through the Ministry of Education. The first U.S. HIPPY
program was initiated in 1984. Currently there are over 110 HIPPY programs in
the United States. Below is a description of HIPPY’s key program features and
their rationale, as conceptualized by the program developer, Avima Lombard. The
program is described in greater detail in Success begins at home (Lombard, 1981).
See Westheimer (1997) for a description of the program as it currently is imple-
mented in the United States.

At the time of the study HIPPY was a two-year program. Most children were
four years old at the beginning of the program and attended kindergarten during its
second year. Thus, the program was designed to span the transition from preschool
to formal elementary school. In each year of the program, there were 30 weeks of
activities, scheduled to coincide with the school year.

In order to enhance the home learning environment and develop each mother’s
ability to support her child’s lifelong learning, Lombard designed the program for
mothers to deliver the HIPPY lessons to their children (as opposed to a home vis-
itor working with the children directly). By learning how to teach their child and
by having successful teaching experiences, the goal was for HIPPY mothers to
gain confidence, interest, and skills to help their children succeed academically
even after the completion of the two year HIPPY program.

Over the course of the program, mothers received a series of books written spe-
cifically for the HIPPY program along with activity packets. Each day, mothers
were to read to their children from one of the books and administer one set of activ-
ities (approximately two to three pages of guided instructions for the mother to
work on with her child). These activities ranged from a series of questions the
mother was to ask the child, along with possible responses; connect the dot activi-
ties; identifying the appropriate object from a printed matrix (e.g., find the girl
with the hat from a matrix of boys and girls with and without hats); and coloring
activities. The HIPPY activities were structured like a detailed lesson plan to guide
mothers in what to read, what questions to ask their children, and how to respond
to their children’s answers. Thus, mothers and children were to progress through
the materials in planned stages, providing children with a series of tasks to accompl
ish before advancing to increasing levels of difficulty. Because the goal was for
mothers and children to have successful teaching and learning experiences, the
materials were designed so that mothers could easily work with their children, and
that all children could progress through the activities with a feeling of mastery.

Lombard developed the HIPPY materials to help children develop the cognitive
skills they needed to achieve in school. Thus, the HIPPY home activities between
parents and children were designed to help children develop age-appropriate lan-
guage skills, sensory and perceptual discrimination skills, motor skills, and
problem-solving skills. Instruction centered around the set of story books, specifi-
cally written for HIPPY, which the parents and children read together. After
reading the stories, the parents and children were to work on the activity packets
which were designed to reinforce cognitive skills in three broad domains: (1) lan-
guage, (2) sensory and perception discrimination, and (3) problem solving.

In targeting the program at poor and immigrant parents, it was assumed by Lom-
bard that they could benefit from learning how to interact with their children in
Effects of HIPPY

ways that would enhance their language development, verbal reasoning, and vocabulary. Thus, the program was designed for the mother to be the reader, so that she too would come into contact with language structure and vocabulary, perhaps enhancing her own language skills.

HIPPY activities were also developed to enhance children's sensory and perception discrimination skills. Drawing on the developmental theory of Piaget (1967) and Vygotsky (1962) that children need repeated interactions with stimuli to sharpen their perception of the world and that verbal cues assist children in learning how to make sense of what they learn, one third of the HIPPY activities involve mother and child in auditory, visual, and tactile sensory discrimination activities. For example, activities guide mother and child to experiment with pitch and volume and rhymes of words with similar initial or final sounds. Visual discrimination skill building activities include asking children to identify specific cells in a matrix, and distinguishing similarities and differences between pictures.

Problem-solving activities were based on the first two factors in Guilford's six factor model (described in Merrifield, 1960). Thus, the ability to think quickly of several attributes of an object and the ability to classify objects and ideas, were the objects of the HIPPY problem-solving activities. The extensive use of matrix-based learning was based on the goal of helping children be able to attend to many different features of objects (and identify specific objects within the matrix) at the same time.

Given the ongoing debate in the field regarding the developmental appropriateness of structure in children's learning activities, the HIPPY materials have undergone serious review and consideration. According to Westheimer (1997), the goal of the program is to provide enough structure for the parents to be able to work on the activities while at the same time following basic accepted guidelines for developmentally appropriate practices for young children. Westheimer (1997) argues that in the HIPPY program this balance is achieved by providing the structure for the parents as opposed to the children. The HIPPY materials have also undergone curriculum review and revision in the United States to ensure that they are culturally diverse and provide sufficient opportunity for open-ended, creative exercises in addition to the structured activities that were originally part of the program (Westheimer, 1997). Thus, the story books and activities now represent a wider range of family structures, types of living situations, and racial and ethnic family characteristics.

Prior to working with her child on the HIPPY lessons, Lombard designed the model such that mothers first were presented the lesson by the paraprofessional during the home visit. During the role-playing session, mothers were to take the role of the child and the paraprofessional took the role of the parent. Thus, mothers learned to use the materials through role playing each week's lessons with the home visitor. Role playing was chosen by Lombard so that mothers could learn in a relaxed, playful, and nonthreatening atmosphere. In that way, the home visitor functions as a modeler of teaching techniques.

Every other week, the paraprofessional home visitor brought to the mother the next week's activity packets. During the home visit the paraprofessional and
mother role-played the lessons. Home visiting was selected as the delivery mechanism to ensure that mothers' ability to participate would not be inhibited by difficulties in traveling to a center-based program. Home visiting was also viewed as a means to individualize the delivery of the lessons for each mother and for the establishment of a personal relationship between the paraprofessional home visitor and the parent.

In the HIPPY program, paraprofessionals were assigned a case load of parents with whom they worked. On a bimonthly basis, the paraprofessionals visited their assigned families in order to deliver and role-play the HIPPY lessons. Paraprofessionals' ability to establish rapport with the HIPPY mothers by virtue of similar backgrounds and life experiences was considered by Lombard a major advantage. Their relative lack of training and experience was countered in the HIPPY program design through the professional HIPPY program coordinator who selected, trained, and supervised the paraprofessionals on a weekly basis.

Every other week HIPPY mothers were to meet with the team of paraprofessionals and the HIPPY program coordinator for a group meeting. The purpose of the group meeting was to provide mothers with the next week's activity packet in a group setting. This way, they could mingle with other HIPPY parents, share concerns and questions about child development or the program, and participate in a group activity. Topics of the group meetings varied over time and across sites and have included arts and crafts projects, presentations from school officials regarding school policies, and discussions about child rearing practices.

As a family-oriented home-based early childhood education program begun in 1969, HIPPY shares many features of the newer breed of family support programs developed over the past twenty years (e.g., Dunst, 1995; Kagan, Powell, Weisbourd, & Zigler, 1987). For example, like most family support programs, HIPPY is based on the ecological orientation of Bronfenbrenner (1979) and, thus, aims to enhance the child's home learning environment for greater continuity between home and school. Likewise, while HIPPY is nationally disseminated, each HIPPY program is funded and administered by a local agency (public school or community-based organization), thereby developing community support and linkages. The value of social support and respect for cultural diversity, two key family support principles, are also prominent in the HIPPY program model. For example, HIPPY books and activity packets have undergone significant revision in the past five years to represent greater cultural diversity. In addition, HIPPY paraprofessional home visitors tend to reside in the same neighborhood as the parents with whom they work. Sharing similar backgrounds and lifestyles is believed to increase the likelihood that the paraprofessionals will be nonjudgmental of the parents and more able to deliver the materials in a way that is consistent with the lifestyle and cultural belief systems of the family (Lombard, 1981).

While HIPPY shares many philosophical principles of family support programs, there are significant differences as well. Notably, there is probably less variation in the content of the HIPPY home visits because of the pragmatic nature of the HIPPY curriculum and the specific programmatic goal to enhance children's cognitive skills—as opposed to the broader, more individualized nature of many
Effects of HIPPY family support programs (Weissbourd, 1987). Thus, evaluating the HIPPY program posed some but not all of the problems faced in evaluations of other home visiting and family support programs (e.g., Powell, 1983; 1987).

With these challenges in mind, in the early 1990s a long-range program of research for the HIPPY program was developed, incorporating different methodological approaches to address several different program implementation and evaluation needs and goals. One study focused on administrative and pragmatic challenges in implementing the HIPPY program in order to identify areas in which program implementation could be modified and/or refined. Results of this effort can be found in Baker and Piotrkowski (1996). A three-site in-depth case study was also conducted in order to gain a deeper understanding of the meaning of the program in the communities and the lives of the staff and participants. Baker, Britt, Halpern, and Westheimer (1996) report major programmatic findings from this project. And finally, an experimental outcome study was conducted in order to assess the effectiveness of participation in the program on major outcomes relevant to program goals. Findings from one site in this study are presented here. This study tested the hypothesis that participation in HIPPY has a positive impact on young children's cognitive skills, standardized achievement, and adaptation to the classroom, over an above any effect of a high-quality preschool program.

**METHODS**

**The Participating HIPPY Program**

The HIPPY program participating in this study was situated in a large city in New York State. The HIPPY program became operational in 1989 as a parent involvement component of the city's public school Early Childhood Center. The Center provided an enriched, high-quality early childhood education setting for prekindergarten and kindergarten children, many of whom were from low-income families with limited English proficiency and from ethnic minorities.

**Design**

The study used a two-cohort randomized experimental design. Cohort I began HIPPY in the winter of 1990, and Cohort II began HIPPY in the fall of 1991. All families—HIPPY and control—participated in the high quality preschool program during the first year of the HIPPY program and enrolled in kindergarten during the second year. Thus, in this study we assessed the impact of the home-based program over and above the impact of the classroom experiences that all children had.

**Sample**

All families enrolled in the prekindergarten program of the agency sponsoring the HIPPY program were invited to participate in a lottery. Volunteer families (70.5%) were then randomly assigned into HIPPY or a control group, although
Table 1. Sample Characteristics at Baseline

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group</th>
<th>HIPPY n = 37</th>
<th>Control n = 32</th>
<th>HIPPY n = 47</th>
<th>Control n = 66</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity of child:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>16%</td>
<td>47%</td>
<td>32%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Latino</td>
<td>38%</td>
<td>28%</td>
<td>32%</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>19%</td>
<td>22%</td>
<td>14%</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>27%</td>
<td>13%</td>
<td>21%</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Education of adult:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>35%</td>
<td>28%</td>
<td>28%</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>24%</td>
<td>44%</td>
<td>32%</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>More than high school</td>
<td>41%</td>
<td>28%</td>
<td>40%</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>Household composition:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single adult alone</td>
<td>32%</td>
<td>25%</td>
<td>26%</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Single adult with family</td>
<td>14%</td>
<td>13%</td>
<td>8%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Couple alone</td>
<td>43%</td>
<td>47%</td>
<td>60%</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>Couple with extended family</td>
<td>11%</td>
<td>16%</td>
<td>6%</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>% Public assistance as primary income:</td>
<td>38%</td>
<td>28%</td>
<td>34%</td>
<td>20% ns</td>
<td></td>
</tr>
<tr>
<td>% Girls:</td>
<td>49%</td>
<td>59%</td>
<td>36%</td>
<td>46% ns</td>
<td></td>
</tr>
<tr>
<td>Age of child in months</td>
<td>58(3.1)</td>
<td>59(3.4)</td>
<td>54(3.5)</td>
<td>54(3.8)</td>
<td></td>
</tr>
<tr>
<td>Baseline score on CPI</td>
<td>43.7(11)</td>
<td>40.5(9.7)</td>
<td>34.4(15.3)</td>
<td>36.5(14)</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 
- In the control group, Cohort I is significantly older than Cohort II [T(96) = 6.27; p < .001]
- In the HIPPY group, Cohort I is significantly older than Cohort II [T(82) = 5.21; p < .001]
- In the HIPPY group, Cohort I scored significantly higher on the CPI than Cohort II [T(82) = 3.21; p < .005]

some families moved away before the program began. Table 1 presents a description of the sample by group and cohort.

As can be seen from Table 1, about two-thirds of the families were from ethnic minorities, primarily African American and Latino backgrounds. One third of the families reported that public assistance was their primary source of income. Families were evenly divided between single parents and couples. As can be seen, a substantial proportion (28% to 41%) of the families had educations beyond high school. Despite this educational advantage, many families did not speak English as their primary language (n = 63, 34.6%).

Procedures

Baseline Data Collection. Baseline data were collected during individualized home visits conducted by trained research assistants not associated with the HIPPY program. For Cohort I, baseline data were collected in February 1991 (rather than in the Fall), because of delays in the beginning of the HIPPY program. Cohort II baseline took place at the beginning of the next school year (September 1991), which coincided with the beginning of their first year of the HIPPY pro-
program. Thus, while both baseline data collection sessions occurred at the beginning of the HIPPY program, Cohort I children were older at their baseline than Cohort II children were at their baseline. This lack of comparability in timing of baseline data collection made it necessary to conduct outcome analyses separately for each cohort.

End of Program Posttest Data Collection. Research assistants assessed children's cognitive skills at the end of the program year, when children were approximately six years of age and completing kindergarten ($N = 160$, $M = 70.35$ months, $SD = 3.57$ months). Children's school performance during kindergarten was assessed through school records ($N = 153$). At the beginning of first grade, children's adaptation to the classroom was assessed through teacher ratings ($N = 146$).

One Year Follow-Up Posttest Data Collection. Children's school performance during the first grade year was assessed through school records ($N = 144$). At the beginning of second grade, teachers rated children's adaptation to the classroom ($N = 152$).

Measures

Where feasible, measures were selected that have demonstrated reliability and validity with low-income and ethnically diverse populations, were standardized on appropriate populations, are sensitive to change, and are nonintrusive and brief. Measures were translated into Spanish when Spanish versions were not available.

Baseline Measures. To determine if control and HIPPY families were equivalent at baseline and to control for any preexisting differences between the two groups, information was collected on children's cognitive skills and family backgrounds. Children's cognitive skills were assessed by the Cooperative Preschool Inventory (CPI) (Educational Testing Service, 1974). The CPI is a 64-item individually administered assessment of preschoolers' cognitive achievements, including their knowledge of colors, shapes, letters, and numbers. The CPI has been used extensively with low-income populations in preschool intervention evaluations (see Laosa, 1982; Lee, Schnurr, & Brooks-Gunn, 1988; Powers & Medena, 1985).

The National Evaluation Information System (NEIS) (Abt, 1988), a comprehensive family questionnaire, was used to gather information about family characteristics through parent self-report. Information was collected regarding age of child, gender of child, ethnicity of adult, level of education of adult, family structure, and source of income.

Posttest Outcome Measures. Children's cognitive skills were assessed by the CPI at program completion. Information on children's kindergarten and first grade standardized achievement was collected from school records. Data included scores on the Metropolitan Readiness Test in kindergarten (MRT, 1976 ed.) and the Metropolitan Achievement Test in first grade (MAT, 5th ed.). Both tests are group administered assessments of children's mastery of school curriculum. The tests are
divided into instructional subtests which measure facts, skills, and concepts and their applications in language, reading, and mathematics. For this study the normal curve equivalents for the Reading and Math subtests were used. KR-20 reliability coefficients are .85 to .93 for Reading, and .79 to .88 for Mathematics.

Children’s classroom adaptation was assessed by teacher ratings on the Child Classroom Adaptation Index (CCAI) at the beginning of first and second grades. Teacher ratings have been shown to be a reliable and valid measure of children’s functioning in the classroom (Spivak & Swift, 1973) and related to children’s school performance (e.g., Luster & McAdoo, 1996). The CCAI is an 11-item teacher report rating scale developed by Halpern and revised by Baker and Piotrkowski (1993). Teachers are asked to rate each child on a scale from 1 (representing poor adaptation) to 5 (representing very successful adaptation) on the child’s enjoyment of books, reading, listening and paying attention, task orientation, self-direction in learning, seeking and using assistance appropriately, curiosity, initiative, enjoyment of schoolwork, likelihood of school success for that year, motivation to learn, and readiness to learn. This measure was administered one month after the start of the school year because teachers reported that they were able to assess the child reliably by that time.

A principal components factor analysis with varimax rotations was conducted with the 11 CCAI items in order to identify potential underlying constructs that could guide data reduction (see Appendix A). Results of the factor analysis revealed a single factor on which all 11 items had factor loadings > .83. Consequently, scores on the 11 items of the CCAI were averaged to create a total score which could range from 1 to 5. Lower scores indicate poorer adaptation to the classroom and higher scores reflect better adaptation. Cronbach’s alpha for this scale was .96, which confirmed that the measure was internally consistent. Initial validity of this scale was examined by computing Pearson correlations between total scores on the CCAI with children’s initial scores on the CPI measured almost two years previously. Results revealed a modest but statistically significant correlation between these two measures \( r = .27, p < .001 \). Scores on the CCAI were also correlated \( r = .51, p < .001 \) with a test of standardized achievement nine months later, providing some evidence for the predictive validity of the measure.

An additional item on the CCAI asked teachers whether they knew if the child had earlier participated in a preschool intervention program and if so which one. The teachers’ perceptions of group status (HIPPY or not) is used as a covariate in all data analyses with this measure.

**Data Analysis**

The study hypothesis was tested in Cohort I and then tested again for Cohort II to determine if the findings were replicated. Analyses of covariance (ANCOVA) were conducted to examine group differences within cohorts. Covariates included child’s age (in months) and gender (0 = female, 1 = male); parents’ ethnicity (African American, Asian, Latino, White, or Mixed), and level of education (less than high school, GED or high school, more than high school), family structure (0 = two parent 1 = single parent), and source of family’s income (0 = wages, 1 = public
assistance), and child’s pretest scores on the CPI. Additionally, in the analyses examining group differences in classroom adaptation, teachers’ knowledge of child’s preschool group status was entered as a covariate. The independent variable, participation in HIPPY was treated as a dichotomous variable (HIPPY = 1, control group = 0). In addition to examining significant levels, we also computed effect sizes using Cohen’s d (Cohen, 1969) in order to assess the extent to which effects were meaningful.

RESULTS

Comparability of HIPPY and Control Families

HIPPY and Control children within both cohorts were compared in order to determine pretest comparability. In neither cohort were there statistically significant baseline differences between the HIPPY and control groups on family background characteristics or in children’s cognitive skills as assessed by the Cooperative Preschool Inventory (CPI). Cohorts were also compared on the background variables to determine if they were drawn from the same populations (see Table 1). Results revealed that Cohort I children were older than Cohort II children, by two months on average and Cohort I children scored significantly higher than Cohort II on the Cooperative Preschool Inventory (CPI).

Attrition From the Study

A threat to internal validity was self-selected attrition from the study. The sample at baseline included 182 families. Attrition ranged from 12.1% to 21%, depending upon data collection session. Although attrition in this study was well within the norm for the field, we still needed to ask if the HIPPY and control samples available for posttesting were similar. Therefore, for each data collection session, the HIPPY and control samples with posttest data were compared on age of child, gender of child, ethnicity of adult, level of education of adult, family structure, source of income, and CPI baseline scores. Cohorts were also compared. Results revealed no differences related to attrition.

Attrition from the Program

We also were concerned with attrition from the HIPPY program. Gomby and colleagues (1993) note that attrition rates from home-visiting programs are generally high, averaging from 35% to 50%. This may be because home-visiting programs often are targeted at hard-to-reach families (e.g., Clinton, 1992; Miller, 1992; Olds, 1988; Olds & Kitzman, 1993). As in other home-visiting programs, attrition was evident in the HIPPY program. Not all families who began the HIPPY program completed all 60 activity packets. Thus, it was necessary to determine how much of the HIPPY program the families who were posttested had received. For these analyses, the amount of HIPPY received was coded as the highest activity packet (from 0 to 60). 27.6% of the families who started the pro-
Table 2. Overview of Effects for Cohort I

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Adjusted* Mean</th>
<th>P</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive Skills</td>
<td>HIPPY</td>
<td>52.21</td>
<td>.04</td>
<td>.63</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>49.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Reading</td>
<td>HIPPY</td>
<td>47.58</td>
<td>.39</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>41.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Math</td>
<td>HIPPY</td>
<td>52.03</td>
<td>.29</td>
<td>.34</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>43.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom Adaptation</td>
<td>HIPPY</td>
<td>3.66</td>
<td>.04</td>
<td>.69</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>2.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Year Follow-up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Reading</td>
<td>HIPPY</td>
<td>54.25</td>
<td>.03</td>
<td>.75</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>38.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Math</td>
<td>HIPPY</td>
<td>55.59</td>
<td>.33</td>
<td>.39</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>48.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom Adaptation</td>
<td>HIPPY</td>
<td>3.60</td>
<td>.02</td>
<td>.68</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>2.83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Covariates = Child’s age, parental level of education and ethnicity, family structure, source of income, and child’s baseline scores on the Cooperative Preschool Inventory.

gram received less than half of the program (1–30 packets). 22.4% of the families who started the program received between half and three quarters of the program (31–45 packets). 50% of the families who started the program received between three quarters and all of the program (45–60 packets).

Findings

A summary of findings is presented in Tables 2 and 3. End of Program Outcomes. Children’s cognitive skills were assessed during home visits at the end of the two year program, when children were completing kindergarten. As can be seen in Table 2, in Cohort I, HIPPY children scored significantly higher on the CPI than the control children $F(1, 46) = 4.50, p < .04$. As measured by effect size, this group difference was educationally meaningful ($d = .63$). However, this finding was not replicated in Cohort II, $F(1, 88) = .94, p < .33$ (see Table 3).

Children’s kindergarten school performance was assessed with the Metropolitan Readiness test. Analyses comparing HIPPY and control children on the reading and math scales revealed that in neither cohort were there statistically significant or educationally meaningful group differences on standardized achievement (see Tables 2 and 3).

At the beginning of first grade teachers rated the classroom adaptation of the HIPPY and control children. In Cohort I, the HIPPY children were rated by their teachers on the CCAI as significantly better adapted to the classroom than the control children, an effect which was statistically significant, $F(1, 37) = 4.42, p < .04$,.
Table 3. Overview of Effects for Cohort II

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Adjusted* Mean</th>
<th>P</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End of Program</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Readiness</td>
<td>HIPPY</td>
<td>53.96</td>
<td>.33</td>
<td>.21</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>53.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Reading</td>
<td>HIPPY</td>
<td>44.16</td>
<td>.72</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>45.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Math</td>
<td>HIPPY</td>
<td>46.79</td>
<td>.39</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>51.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom Adaptation</td>
<td>HIPPY</td>
<td>3.23</td>
<td>.32</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>One Year Follow-up</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Reading</td>
<td>HIPPY</td>
<td>52.35</td>
<td>.78</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>50.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Math</td>
<td>HIPPY</td>
<td>56.49</td>
<td>.70</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>58.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom Adaptation</td>
<td>HIPPY</td>
<td>3.54</td>
<td>.60</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *Covariates = Child’s age, parental level of education and ethnicity, family structure, source of income, and child’s baseline scores on the Cooperative Preschool Inventory.

and educationally meaningful (d = .69). Again, this effect was not replicated in Cohort II (see Table 3).

**One Year Follow-Up Outcomes.** HIPPY children in Cohort I scored significantly higher on the reading scale of the first grade Metropolitan Achievement Test $F(1, 35) = 4.90, p < .034$, an effect which was educationally meaningful (d = .75) (see Table 2), but was not replicated in Cohort II (see Table 3).

At the beginning of second grade, teachers rated the classroom adaptation of the children using the CCAI. In Cohort I, the HIPPY children were rated as better adapted to the classroom than the control children, an effect which was statistically significant, $F(1, 44) = 5.07, p < .03$, and educationally meaningful (d = .68). Once again, this finding was not replicated in Cohort II (see Table 3).

**Testing Possible Cohort Effects**

Because Cohort I findings were not replicated in Cohort II, the hypothesis was tested that the two cohorts were drawn from different populations. Three analyses were conducted: (1) an analysis of differential rates of attrition; (2) a comparison of those with and without posttest data; and (3) a comparison of the cohorts in amount of HIPPY (number of packets) received. The cohort analyses indicated that the samples for each cohort were not drawn from different populations, ruling this out as an explanation for the different pattern of findings between the cohorts (Results are available from authors).
DISCUSSION

This study tested the hypothesis that children who participated in the HIPPY program would perform better in school than their peers who did not participate in the program, over and above the effect of a high-quality, full-day preschool program. Because all children—HIPPY and control—participated in the same high-quality prekindergarten program, the hypothesis test was extremely stringent. Two tests of the hypothesis were conducted in successive cohorts. Findings were mixed.

Findings from Cohort I supported the hypothesis that children who had participated in the HIPPY program would score higher on important measures of school success than children in the control group. As they began their elementary school careers, Cohort I HIPPY children outperformed their peers on objective measures of school performance and on ratings by teachers of their adaptation to the classroom. At the end of kindergarten, the HIPPY children had significantly higher scores on the Cooperative Preschool Inventory. At the beginning of first grade they were rated by their teachers as significantly better students. At the end of first grade the HIPPY children scored significantly higher on a standardized test of reading; and at the beginning of second grade their teachers rated them as better adapted to the classroom. These positive effects were observed over and above children’s participation in a center-based preschool program. Thus, the HIPPY children had a more successful entry into elementary school with better skills, better performance, and with higher assessments from their teachers. These findings are particularly promising because of the stability of children’s school trajectories (Alexander & Entwisle, 1988; Ladd & Price, 1987). That is, children who start off performing well tend to remain as high performers while children who have a poor start tend to continue to do poorly in school.

Despite the promising findings from Cohort I, conclusions regarding HIPPY’s effectiveness must be tempered, as these findings were not replicated in Cohort II. Attrition analyses did not reveal a compelling explanation for a failure to replicate the results. Moreover, there were no pragmatic differences that accounted for this differences in program effects. Thus, we may be seeing naturally occurring variation in the effects of programs within communities. A quasi-experimental evaluation of a HIPPY program in Arkansas was conducted concurrently with the New York evaluation reported above. Results partially replicated the New York findings with some positive effects in Cohort I which were not replicated in Cohort II (Baker & Piotrkowski, in press). Clearly, more research on HIPPY is called for in order to account for these mixed results. Our findings also alert us to the importance of replication studies and caution us about generalizing positive or negative results from single-sample, single-site evaluations.

There are a number of other avenues future research could take to address important questions about the HIPPY program not included in this evaluation. First, research should continue to follow families in the HIPPY program to determine the long-term effects of participation. In addition to the positive effects found here in Cohort I, additional benefits of participation in this program may be discovered as the children continue to develop and initial small gains in other outcome domains snowball into larger and significant effects in subsequent assessments. Con-
versely, as Smith (1995) points out, initial gains for intervention participants may decline over time. Determining possible loss of effects would also be a useful endeavor, as it could indicate the need for more intensive follow-up services for children making the transition from intervention programs such as HIPPY into formal schooling.

Future research should also aim to identify the mediating processes by which parental participation in HIPPY affects children. Fruitful avenues include an examination of parental expectations for their children’s school success, their confidence as their child’s teacher, and other aspects of “parental engagement in their child’s schooling” (Berlin, O’Neal, & Brooks-Gunn, 1998; Entwisle & Alexander, 1988). Ideally, parents who participated in HIPPY will apply the skills developed in the program to support their children’s education throughout their school careers. Parental involvement in a child’s ongoing school life seems to play a role in the child’s school success (Luster & McAdoo; 1996; Stevenson & Baker; 1987). However, the generalization of the program from daily parent-child HIPPY lessons to ongoing parent involvement has yet to be documented.

Examining treatment intensity would also make an important contribution by specifying how much of the HIPPY program is necessary for a parent to receive in order for a positive effect to be obtained. And finally, identification of subgroups of families who are more or less likely to benefit from the program could be useful for program coordinators as they recruit families into the program and train para-professionals to maintain family involvement over the two-year program. Smith (1995) suggests that program affects may differ depending upon initial levels of parental psychological distress. Other family characteristics such as education level, family structure, and parent participation in welfare-to-work activities might also mediate the impact of the program and should be the focus of future research efforts (Berlin, Grooks-Gunn, McCarton, & McCormick, 1998)

NOTES

1. HIPPY programs are also now implemented in Turkey, South Africa, the Netherlands, Mexico, Germany, and New Zealand.
2. All HIPPY programs in the United States are affiliated with HIPPY USA, a national technical assistance and training center located in New York City.
3. Examined were: children’s age, gender, and cognitive skills; family structure, source of education, level of maternal education, and ethnicity.
4. These cohort effects are probably due to the fact that Cohort I baseline data collection took place later than in Cohort II because the program start was delayed.
5. All ANCOVAs were also run without entering CPI pretest scores as a covariate. All findings remained and one new marginally significant effect was revealed: In Cohort I, standardized math scores at one year follow-up were greater for the HIPPY children (adjusted mean = 58.14) than the control children (adjusted mean = 46.03) $F(1, 36) = 3.48, p < .07$.

REFERENCES


Consortium for Longitudinal Studies (1983). *As the twig is bent...Lasting effects of preschool programs*. Hillsdale: Erlbaum.


**APPENDIX A**

**Factor Loading of CCAI Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoyment of books and reading</td>
<td>.85</td>
</tr>
<tr>
<td>Listening and paying attention</td>
<td>.87</td>
</tr>
<tr>
<td>Task orientation</td>
<td>.87</td>
</tr>
<tr>
<td>Self-Direction</td>
<td>.91</td>
</tr>
<tr>
<td>Seeking and using assistance</td>
<td>.85</td>
</tr>
<tr>
<td>Curiosity</td>
<td>.84</td>
</tr>
<tr>
<td>Initiative</td>
<td>.89</td>
</tr>
<tr>
<td>Enjoyment of schoolwork</td>
<td>.83</td>
</tr>
<tr>
<td>How well child will do in school</td>
<td>.89</td>
</tr>
<tr>
<td>Motivation to learn</td>
<td>.91</td>
</tr>
<tr>
<td>Ready to learn</td>
<td>.90</td>
</tr>
</tbody>
</table>

% variance: 76.5

**Notes:**
1. HIPPY programs are also now implemented in Turkey, South Africa, the Netherlands, Mexico, Germany and New Zealand.
2. All HIPPY programs in the United States are affiliated with HIPPY USA, a national technical assistance and training center located in New York City.
3. Examined were: children’s age, gender, and cognitive skills; family structure, source of education, level of maternal education, and ethnicity.
4. These cohort effects are probably due to the fact that Cohort I baseline data collection took place later than in Cohort II because the program start was delayed.
5. All ANCOVAs were also run without entering CPI pretest scores as a covariate. All findings remained and one new marginally significant effect was revealed: In Cohort I, standardized math scores at one year follow-up were greater for the HIPPY children (adjusted mean = 58.14) than the control children (adjusted mean = 46.03) \(F(1,36) = 3.48, p < .07\).