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Third National Even Start Evaluation

Follow-Up Findings From the Experimental Design Study

December 2004

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ABBREVIATIONS

ABE	Adult Basic Education
ESL	English as a Second Language
EDS	Experimental Design Study
ESPIRS	Even Start Performance Information Reporting System
GED	General Education Development credential or diploma
FACES	Head Start Family and Child Experiences Study
HS	High School
JOBS	Job Training for Basic Skills
LIFT	Literacy Involves Families Together
PPVT	Peabody Picture Vocabulary Test
SSRS	Social Skills Rating System
TANF	Temporary Assistance for Needy Families
WJ-R	Woodcock-Johnson Psychoeducational Battery (Revised)

ABSTRACT

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Background: The Even Start Family Literacy Program has provided instructional services to low-income children and their parents since 1989. A previous randomized controlled trial in the early 1990s did not show this program to have positive impacts.

Purpose: To assess the effectiveness of Even Start in a group of grantees around the country. An earlier report from this study presented impact findings based on pretest and posttest data at the start and end of a school year. No program impacts were found. The purpose of the current report is to present impact analyses of follow-up data collected one year after posttest data.

Setting: 18 Even Start grantees in 14 states that operated in the 1999-2000 and 2000-2001 school years.

Subjects: 463 families eligible for and interested in participating in Even Start family literacy services.

Intervention: Even Start families were offered family literacy services, defined as (1) interactive parent-child literacy activities, (2) parenting education, (3) adult education, and (4) early childhood education.

Research Design: Randomized controlled field trial in which families were randomly assigned either to Even Start (309 families) or a control group (154 families).

Control or Comparison Condition: Control families could participate in any educational and social services to which they were entitled, but they were not allowed to participate in Even Start for one year.

Data Collection and Analysis: Pretest data on child and adult literacy skills were collected in the fall, posttest data were collected in the spring/summer, and follow-up data were collected the next spring. Measures included direct assessment of children (Peabody Picture Vocabulary Test, Woodcock-Johnson Battery, Story & Print Concepts), direct assessment of parents (Woodcock-Johnson Battery), teacher report on children (Social Skills Rating System), parent reports on economic and educational status, child literacy-related skills, home literacy environment and activities, parent assessment of children (Vineland Communication Domain), and school records. A longitudinal sample (data at all three waves) of children and parents was created for each outcome measure, and t-tests were conducted to assess differences in gains between Even Start

and control groups. The sample size for the analysis of any given outcome depends on several factors including attrition, age of the child, exclusion of families who were assessed in Spanish, and the need for longitudinal data. For example, the PPVT analysis for children was done with samples of 97 Even Start and 44 control children, and the Woodcock-Johnson analysis for parents was done with samples of 149 Even Start and 65 control parents.

Findings: As was the case at posttest, Even Start children and parents made gains on a variety of literacy assessments and other measures at follow-up, but they did not gain more than children and parents in the control group. It had been hypothesized that follow-up data might show positive effects because (1) Even Start families had the opportunity to participate for a second school year, and (2) change in some outcomes might require more time than others. However, the follow-up data do not support either of these hypotheses.

Conclusion: The underlying premise of Even Start as described by the statute and implemented in the field was not supported by this study.

SECTION 1: BACKGROUND AND SUMMARY OF FINDINGS

The third national Even Start evaluation included two complementary studies: (1) the Even Start Performance Information Reporting System (ESPIRS) provided annual data on the universe of Even Start projects from 1997-1998 through 2000-2001, and (2) the Experimental Design Study (EDS) was an experimental study of Even Start's effectiveness in 18 projects, reflecting the way that projects were implemented during 1999-2000 and 2000-2001.

The major set of evaluation findings are contained in the recently-released report by St.Pierre, Ricciuti, Tao, Creps, Swartz, Lee, Parsad & Rimdzius (2003). The analysis for that report relied on a comparison of pretest data collected at the beginning of the school year with posttest data collected at the end of the same school year from Even Start and control group families who participated in the EDS. The present document updates the findings from the St.Pierre, Ricciuti, Tao, et al (2003) report by comparing pretest data with follow-up data collected about nine months after the posttest. The findings presented in this document are consistent with and lead to the same conclusions as findings contained in the earlier report.

SUMMARY OF FINDINGS

Eighteen Even Start projects and 463 families participated in the EDS -- 309 families were randomly assigned to participate in Even Start and 154 were assigned to a control group that could avail themselves of any educational services to which they were entitled, but they could not participate in Even Start. Pretest data on child and adult literacy skills were collected in the fall, posttest data were collected in the spring/summer, and follow-up data were collected in the following spring.

Although analysis of pretest compared with posttest data did not show that Even Start children and adults performed better than control group children and adults (see St.Pierre, Ricciuti, Tao, et al, 2003), it was hypothesized that follow-up data might show positive effects of Even Start due to either, or both, of two factors. First, families that were assigned to Even Start had the opportunity to participate in the program for approximately one school year between pretesting and posttesting. Collecting follow-up data nine months after posttesting gave those families the opportunity to participate in Even Start for a second school year, possibly leading to positive effects under the assumption that a greater amount of exposure to Even Start would lead to larger literacy gains and to statistically significant program impacts.

A second hypothesized reason that positive effects might show up in follow-up data is that change in some outcome measures is more long-term in nature than others, and impacts might be evident after two school years, even if there were no impacts after one year. An example is household income, which might not change until parents have increased their literacy skills or education level and found a job, or acquired a better job. Another example is child literacy levels, which are hypothesized to change, in part, as a result of temporally prior changes

in parenting skills and parent literacy. It takes time for the latter to occur, so it is possible that changes in child literacy that are not apparent after one school year of Even Start might be seen after two school years, due to changes that occur in parents.

The follow-up data do not support either of these hypotheses. Findings from analyses of literacy gains based on a comparison of pretest data with follow-up data (collected about 18 months after pretest) are almost identical to the findings based on a comparison of pretest data with posttest data (about nine months after pretest). In short, at follow-up, while Even Start children and parents made gains on literacy assessments and other measures, children and parents in the 18 Even Start programs that participated in the EDS did not gain more than children and parents in the control group.

We hypothesized that positive effects might be observed by the time of the follow-up data collection if families assigned to Even Start participated in instructional services for a substantially longer period of time. However, data from the Even Start Performance Information Reporting System (ESPIRS) show that Even Start EDS families participated in instructional services for an average of about 8 months between pretest and posttest data collection, and for an average of 10 months between pretest and follow-up data collection. Thus, providing the opportunity for an additional year of exposure to Even Start resulted in little additional participation on the part of families (an average of two additional months).

Another way in which we sought to understand participation in Even Start was to ask parents about the instructional services in which they participated during the prior year. At the posttest, significantly more Even Start parents than control parents reported that their children participated in early childhood education (72% vs. 32%), and that they participated in adult education (59% vs. 29%) and in parenting education (28% vs. 17%). By the follow-up assessment, more Even Start parents than control parents reported that their children participated in early childhood education (57% vs. 44%), and roughly equal percentages of Even Start and control parents reported participating in adult education (40% vs. 32%) and parenting education (17% vs. 20%). Although these data show that significantly more Even Start families than control families participated in instructional services, the participation rates for the two groups are not large in an absolute sense and are not nearly as different as might be expected, indicating both that Even Start families did not participate fully in the program, and that control families were able to find competing instructional services. Thus, in order for Even Start families to perform better than control families on literacy-related outcome measures, the instructional services in which Even Start families participated would have to be much more effective than the instructional services in which control group families participated. This is unlikely since many Even Start projects build on instructional services that already exist in the community – the same services in which control group parents and children may have been participating.

Finally, it was hypothesized that positive effects on child literacy might be observed in the follow-up data collection because of the additional time that parents have to improve their parenting and literacy skills. These improvements would then be hypothesized to translate into changes in their interactions with their children, and additional family resources. However, the data do not show significant impacts of Even Start on parents' literacy skills or parenting behaviors, so the subsequent lack of impacts on children is not surprising.

STUDY LIMITATIONS

The EDS used a random assignment design, the strongest approach for estimating program impacts. However, projects volunteered for this study instead of being randomly selected, so we cannot generalize to the Even Start population on a strict statistical basis. EDS families are more likely than the population of Even Start families to be Hispanic, and EDS projects are more likely than the population of Even Start projects to be in urban areas. Thus, findings from the EDS are most relevant to urban projects that serve large numbers of Hispanic/ESL families.

In addition, to be included in the analysis for this study, children and parents were required to have a complete set of data for a given outcome variable (i.e., data at pretest, posttest, and follow-up) with all direct assessments administered in English. This limits generalizability to families that are relatively stable over a two-year period as well as children and parents who were comfortable enough with English to be assessed in that language.

SECTION 2: THE EVEN START FAMILY LITERACY PROGRAM

THE FAMILY LITERACY MOVEMENT

Through the mid-1900s, the nation's literacy problems were addressed by a dual system of public and private sector efforts that included remediation programs for adults in the form of adult education or workplace literacy programs, and prevention programs for children in the form of early childhood education efforts such as Head Start. The seeds of a new approach were sown in the late 1970s and early 1980s when many of the first family literacy programs were planned and implemented (Smith, 1995).

Drawing on the experiences of existing early intervention and adult literacy programs, family literacy programs are based on the beliefs that children's early learning is greatly influenced by their parents, that parents must develop and value their own literacy skills in order to support their children's educational success, and that parents are their children's first and best teachers. Family literacy programs seek to improve the literacy development of young children not only by providing early childhood education services directly to young children, but also by helping parents become more literate themselves, by helping parents understand more about how children learn, and by inculcating good teaching habits in parents. In the late 1980s this new approach emerged in full force as family literacy programs proliferated under a range of sponsors including state governments (e.g., Kentucky's PACE program), local school districts (e.g., the Marin, CA Library Family Literacy Program), private organizations (e.g., the National Center for Family Literacy), private corporations (e.g., Stride-Rite's Intergenerational Day Care program), and universities (e.g., El Paso State College's Family Intergenerational English Literacy Program). The movement attained national status in 1989 when the federal government instituted its family literacy centerpiece, the Even Start Family Literacy Program.

THE FAMILY LITERACY MODEL

Even Start, like most family literacy programs, offers instructional services that include early childhood education, adult literacy education, parenting education, and structured literacy interaction between parents and their children. According to Sharon Darling, President of the National Center for Family Literacy, the four-component family literacy model is intended to:

> …promote intergenerational learning as an effective means to break the cycle of poverty and undereducation. Family literacy provides self-sufficiency for multiple generations simultaneously. When parents and children work together, the parents have the opportunities to gain the skills to fulfill their roles as parents, workers and citizens. Children gain academic readiness and reading skills to be successful learners in our schools (Darling, 2000).

Recent legislation provided a definition of family literacy that is used in all federal programs that offer family literacy services. While Even Start is the premier federal family literacy program, family literacy services are allowable in programs such as Head Start, Title I, Adult Education and Reading First. Federal family literacy services are defined as follows:

> Services provided to participants on a voluntary basis that are of sufficient intensity, in terms of hours, and of sufficient duration to make sustainable changes in a family, and that integrate all of the following activities: interactive literacy activities between parents and their children; training for parents regarding how to be the primary teacher for their children and full partners in the education of their children; parent literacy training that leads to economic self-sufficiency; and age-appropriate education to prepare children for success in school and life experiences. (Public Law 105-277).

One of the assumptions underlying the family literacy model is that a child will benefit more from being in a family that participates in each family literacy service (early childhood education, adult education, parenting education and parent-child literacy activities), than from simply participating in an early childhood program. A model of family literacy theory described by St.Pierre, Ricciuti, Tao, et al (2003) predicts that family literacy programs such as Even Start will produce short-term positive effects on the literacy skills of children and parents who participate intensively in early childhood education and adult education services, as well as short-term positive effects on parenting skills and the home literacy environment due both to participation in parenting education and parent-child literacy activities (Figure 2.1). Early effects on child literacy skills and on parenting skills and household literacy resources, as well as enhanced parent literacy skills and enhanced economic outcomes for the family (e.g., improved parent education, better employment, increased household income) all are hypothesized to lead to longer-term positive effects on the literacy skills of children in the family and continued enhancement of economic outcomes.

What research about the instructional components of family literacy programs supports these hypotheses? A large body of research attests to the effectiveness of high-quality, intensive early childhood education programs at producing significant short-term children's cognitive benefits for children from low-income families (e.g., Barnett, 1995; Karoly, Greenwood, Everingham, et al, 1998). Model early childhood programs such as the Abecedarian project (Ramey & Campbell, 1988) and the Perry Preschool Program (Schweinhart, Barnes & Weikart, 1993) have produced short-term IQ gains of between 0.5 and 1.0 standard deviation units.

Research evidence on the effectiveness of parenting education and adult education is much less compelling. There is little doubt that parents play a critical role in the cognitive development of their children. A large descriptive research literature links levels of parent education to levels of child achievement (National Research Council, 1998, 2000, 2001), and a number of studies have shown a positive relationship between language-rich parent-child interactions and language development of young children (Hart & Risley, 1995; National Research Council, 1998, 2000, 2001; Powell & D'Angelo, 2000). However, no experimental evidence has been found to support the hypothesis that parenting programs can make large enhancements in parent literacy and parenting skills, and most studies and reviews of research in

this area have concluded that parenting education, by itself, is not able to affect child outcomes (Barnett, 1995; St.Pierre & Layzer, 1998; Wagner & Clayton, 1995; Clarke-Stewart, 1988).

Adult basic and secondary education programs have high dropout rates and low levels of intensity, making it difficult to see how they can be expected to lead to positive effects on literacy outcomes (Moore & Stavrianos, 1994), and most reviews of adult basic education programs have concluded that while education and training programs have modest positive effects on GED attainment, they have not been able to increase adults' literacy skills (Bos, Scrivener, Snipes & Hamilton, 2002; Datta, 1992; Duffy, 1992; Mikulecky, 1992). A comprehensive review of job training and search programs shows that these programs have small, but real effects on employment, AFDC receipt, and income (Fischer & Cordray, 1995). Still, welfare-to-work programs have not lifted substantial numbers of adults out of poverty, and a well-respected review of the impact of welfare-to-work programs concluded that, while almost of the programs studied led to small gains in earnings, many participants remained in poverty and on welfare (Gueron & Pauly, 1991). In addition, the authors voiced concern that even mothers who obtain jobs frequently leave or lose them, for reasons such as a lack of transportation or child care and loss of health benefits for children.

Thus, previous research about family literacy instructional components shows that high-quality, intensive early childhood education programs can indeed produce short-term cognitive benefits for low-income children. However, expectations about the effectiveness of parenting education and adult education programs for parents should be modest at best, with subsequent effects on their children being even more unlikely, leading Ramey, Ramey, Gaines & Blair (1995) to question the premise that adult-focused programs can ever have benefits for children. Even assuming that it might be possible to significantly alter parent literacy and parenting skills, research has not shown that these changes will translate into improved literacy performance among children in a timely manner (Ramey & Ramey, 1992).

In spite of the questions raised by this research evidence, the family literacy model hypothesizes that the instructional services described above will be more effective when integrated into a unified program, that some synergy is expected from receiving the combination of services, and that the integration of instructional services will lead to enhanced outcomes both for children and their parents.

THE EVEN START FAMILY LITERACY PROGRAM

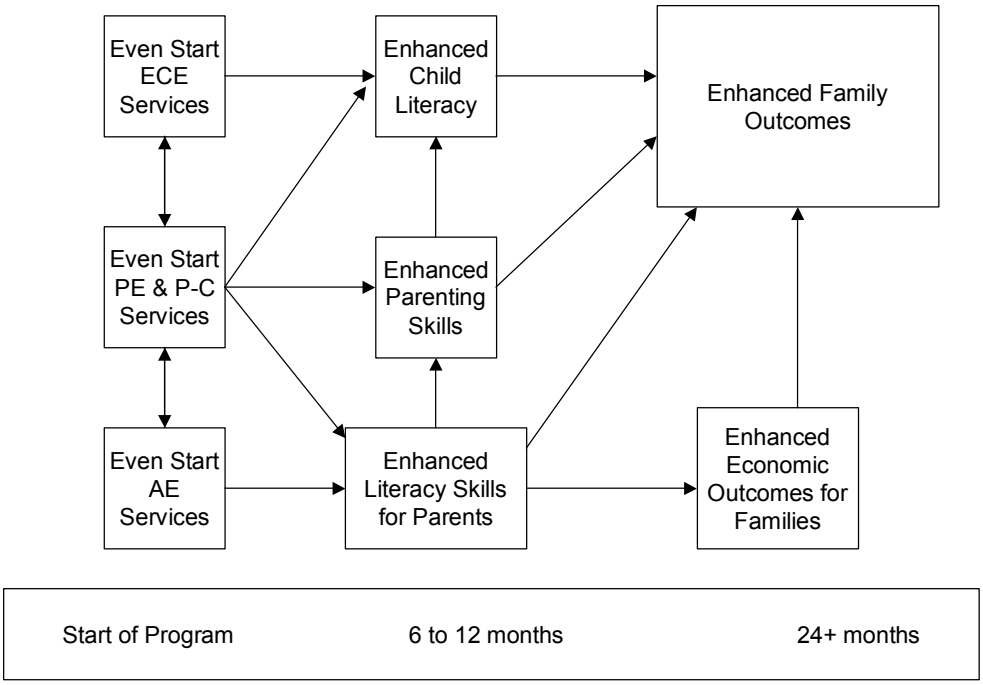
As the Nation's largest and most visible family literacy program, Even Start addresses the basic educational needs of low-income families including parents and their children from birth through age seven by providing a unified program of family literacy services, defined as services that are of sufficient intensity in terms of hours, and of sufficient duration, to make sustainable changes in a family, and that integrate:

- Interactive literacy activities between parents and their children (parent-child activities).
- Training for parents regarding how to be the primary teacher for their children and full partners in the education of their children (parenting education).

- Parent literacy training that leads to economic self sufficiency (adult education).
- An age-appropriate education to prepare children for success in school and life experiences (early childhood education).

Even Start's long-term purpose is to help break the cycle of poverty and illiteracy for low-income families. Local Even Start projects are meant to integrate the components of family literacy and build on services that already exist in their communities. The program has grown steadily over the past decade, both in terms of federal funding as well as the number of projects that are supported with those funds. From a small demonstration program in which $14.8 million was used to fund 76 projects in 1989-1990, Even Start has grown ten-fold. In 2000-2001, $150 million in funding was distributed to 855 projects serving 32,000 families in all 50 states, and funding rose to $250 million in 2001-2002 (the appropriation was approximately $248 million in 2002-2003). Even Start has been reauthorized and amended several times, most recently through the Literacy Involves Families Together (LIFT) Act of 2000 and the No Child Left Behind Act of 2001. The third national evaluation was designed before these reauthorizations, so this report's findings reflect Even Start as it was implemented pre-reauthorization.

Figure 2.1: Model of Even Start's Hypothesized Effects



Note: In this figure, ECE stands for early childhood education; PE for parenting education; P-C for parent-child joint activities; and AE for adult education.

SECTION 3: DESCRIPTION OF THE EVALUATION

IMPLEMENTATION OF THE EVALUATION

The original design for and resources allocated to the EDS called for an experiment to be conducted in 15 to 20 Even Start projects. In practice, the EDS was implemented in 18 projects which voluntarily agreed to randomly assign incoming families to be in Even Start or a control group, providing an experimental assessment of Even Start's impacts. A summary of the numbers of projects and participants at each stage of the evaluation is given in Figure 3.1.

EDS Sample and Evaluation Design. Projects were recruited during the 1999-2000 and 2000-2001 school years to participate in the EDS. During this time, all Even Start projects in the nation were screened for eligibility. To pass the eligibility screen, projects had to minimally meet Even Start's legislative requirements, be in operation for at least two years, plan to operate through the length of the study, plan to serve about 20 new families at the start of data collection, offer instructional services of moderate or high intensity relative to all Even Start projects, and be willing to participate in a random assignment study. Projects also were recruited from urban and rural areas, as well as projects that served varying proportions of ESL participants. Over the two recruitment years, 115 out of a universe of about 750 projects met the selection criteria. All 115 eligible projects were contacted, materials were sent describing the study, telephone calls were made to all 115 projects to discuss the study, and site visits were made to many of the projects. In the end, 18 of these projects (about 15% of the eligible projects) were willing to participate in the study. The background characteristics of families in the two cohorts of projects were similar, so data were combined across all 18 projects for analytic purposes.

The fact that only 115 out of 750 projects met the selection criteria for the EDS should not call the validity of the study into question. The selection criteria outlined above were applied in order to obtain a sample of projects that would be operating during the time of the study, that were not brand-new projects, that offered a reasonable amount of instructional service, and that could recruit a sufficient number of new families. All of these are fair study requirements.

However, the fact that only 18 out of 115 eligible projects were willing to participate in the EDS does make us worry about the generalizability of the findings (see discussion below). Why was the rate of participation of projects in the study so low? The key reason is that participation in the evaluation was not mandated – it was not a condition for continued receipt of federal funding. The approach of mandated participation in federal studies has been used in the recent past and has been shown to be very effective, e.g., for the Head Start Impact Study. In the absence of this sort of a mandate, the EDS had to rely on incentives and the good will of project staff. Several incentives were offered including a cash honorarium of $1,500 for each project, $20 for each family at each wave of data collection, and $15 for each teacher at each wave of data collection. Projects were offered the opportunity to meet with each other at national meetings, letters of commendation were written to local school boards, and discussions about the importance of the research were held with project staff. Of course, the main deterrent to

participating in the EDS was the requirement that projects allow research staff to randomly assign incoming families to be in Even Start or a control group.

Randomization of Families. Each of the 18 EDS projects was asked to recruit families as they normally do and to provide listings of eligible families to Abt Associates staff who randomly assigned families either to participate in Even Start (two-thirds of the families) or to be in a control group (one-third of the families). Assignment to the control group meant that the family could not participate in Even Start for one year. A total of 463 families were randomly assigned in the EDS -- 309 to Even Start and 154 to the control group (Table 3.1 and Figure 3.1), maintaining the planned 2:1 ratio. This is an average of about 26 families per project.

Instead of restricting children in the EDS to, say, preschoolers, children throughout the Even Start age range were included. Even though the EDS provided some data on all children in the study, the sample for analysis of literacy gains on direct assessments was limited to children who were at least 2.5 years old at the time of pretesting since most standardized literacy measures are not appropriate for children until they reach this age. About one-third of the children in the EDS were under 2.5 years of age at the time of pretest (Table 3.2). At the time of the follow-up, only about 10% of children in the EDS were under 2.5 years. Parent-report measures of child literacy skills were available for children of all ages.

Comparability of Even Start and Control Groups. Even Start and control families were statistically equivalent at the time of randomization and at the pretest (Table 3.3). Group equivalence at the time of randomization is guaranteed, within known statistical bounds, by proper implementation of random assignment and a sufficiently large sample size. However, 10% of the families were lost between the time of randomization and time of pretest. This attrition occurred equally in the Even Start and control groups. An analysis of pretest data showed that Even Start and control groups did not differ significantly on the percent of families where Spanish was spoken at home, families where English was spoken at home, Hispanic families, parents with a high school diploma or a GED, single parent households, employed parents, and households with annual income less than $9,000.

Generalizability of EDS Findings. The EDS used a random assignment design, the strongest approach for estimating program impacts. However, projects volunteered for this study instead of being randomly selected, so we cannot generalize to the Even Start population on a strict statistical basis. The plan was to select EDS projects to include urban and rural projects, projects that offer varying amounts of instruction, and projects that serve high and low percentages of ESL families. Due to the voluntary nature of the study, this plan could not be implemented perfectly, and while the EDS projects do represent major kinds of projects funded in Even Start, the data presented in Table 3.3 show that EDS families are more likely than the population of Even Start families to be Hispanic (75% vs. 46%). Further, 83% of EDS projects are in urban areas compared with 55% of all Even Start projects. These data suggest that findings from the EDS are most relevant to urban projects that serve large numbers of Hispanic/ESL families.

Data comparing the mean pretest scores of EDS families with the population of Even Start families on 18 parent-reported outcomes having to do with child literacy skills and home

literacy activities are shown in St.Pierre, Ricciuti, Tao, et al (2003, Exhibit 6.1.41). For most variables there is no difference between the two groups, and the data support the contention that there are no important differences between EDS families and the Even Start population in terms of parent reported literacy skills and home literacy activities.

Data Collection. EDS data were collected at three time points. For the 11 projects that began the EDS in the 1999-2000 program year, pretest data were collected in fall 1999, posttest data in spring 2000, and follow-up data in spring 2001. For the seven projects that began the EDS in the 2000-2001 program year, pretest data were collected in fall 2000, posttest data in spring 2001, and follow-up data in spring 2002. In many projects, families entered Even Start on a rolling basis, so the pretest data collection was spread across several months (October through January) as new families entered the program. There was an average of 8.8 months between pretest and posttest, with a minimum of 5 months and maximum of 12 months. There was an average of 19.6 months between pretest and follow-up, with a minimum of 16 months, and a maximum of 24 months. Data collection from parents and children was done by field staff members that were recruited by, trained by, and employed by the research contractor. Field staff members had backgrounds in interviewing and in working with children, although experience assessing children and adults was not a prerequisite for employment.

Data Collection Response Rates. Response rates for the EDS data collection were high compared with those achieved by many educational studies: 90% at the pretest, 81% at the first posttest, and 76% at the follow-up assessment (Table 3.1 and Figure 3.1). Response rates are based on completed parent interviews, which generally correspond to the number of adults for whom we have direct assessment data. As mentioned above, the number of children for whom direct assessment data is available is less than the number of parents with such data, since child assessments could only be administered to children over 2.5 years of age. Sample sizes for individual outcomes vary considerably due to (1) response rates, as noted above, (2) children who were too young to be tested, and (3) children/parents who were tested in Spanish.

We examined the comparability of the samples of families who were randomized (n=463), those who were assessed at pretest and posttest (n=364, reported on in St.Pierre, Ricciuti, Tao et al, 2003), and those who were assessed at pretest, posttest, and follow-up (n=317, reported on in the current document). For the sample that was randomized, but never found at one of the assessment points, we have demographic information that was obtained as part of the consent and study enrollment process (Table 3.4). For the samples that were assessed at one or more time-points, we have additional demographic data, in addition to PPVT pretest scores. It can be seen that the three samples are quite comparable with regard to demographics and pretest assessment scores. Since the data presented in Table 3.3 show that the Even Start and control groups were statistically equivalent at pretest, and the data presented in Table 3.4 show that families in the longitudinal analytic sample (Even Start and control group combined) have the same characteristics as families in the sample at pretest, sample bias does not appear to be a concern when interpreting the longitudinal results presented in this report.

Test Language. Many Even Start projects serve a high percentage of non-English speaking families and deciding which language to use for literacy assessments posed difficult issues for this evaluation. We selected literacy measures that were available in both English and

Spanish, e.g., the Peabody Picture Vocabulary Test and the Woodcock-Johnson. However, the English version of each measure was administered whenever possible. This approach served two purposes. First, assessing in English is consistent with Even Start's goal for adults and children to become literate in English. Second, assessing in English provides for the largest possible analytic sample of children and adults tested in a common language. We compared pretest data for adults and children tested in English with pretest data for the small number of adults and children tested in Spanish. In spite of the claims of publishers that English and Spanish test forms are "equivalent", we found very large differences in the pretest scores of English test-takers and Spanish test-takers, making us uneasy about combining the two sets of data. Just as difficult was the fact that some children and adults took the Spanish version of an assessment at one time (pretest, posttest or follow-up) and the English version at another time. We were uneasy about trying to conduct any analysis of change when different test languages were used, and in the end we restricted analyses of child and parent literacy outcomes to children and parents who took the assessment in English at all three times (pretest, posttest, follow-up). This restriction led us to exclude 59 children and 86 parents from the analysis of child and parent literacy outcomes, representing 13% and 19%, respectively, of the total sample of 463 families. This limits the generalizability of findings to children and parents who were comfortable enough with English to be assessed in that language.

Analysis Sample and Methods. The bottom part of Figure 3.1 shows how the analysis sample was constructed for two key outcome measures -- the PPVT, which was administered to children and the WJ-R, which was administered to adults. Ninety-seven Even Start children and 44 control group children had valid PPVT scores at all three time points and thus formed the analysis sample for this outcome measure. Children were excluded from the analysis of PPVT data for several reasons:

- Thirty-two Even Start and 14 control children were in families that could not be found for the pretest data collection.
- Eighty-seven Even Start and 43 control children were too young (under age 2.5) to be tested at pretest.
- Forty Even Start and 19 control children took the PPVT in Spanish (the TVIP) at one or more time points.
- Fifty-three Even Start and 34 control children did not have a complete set of longitudinal data (pretest, posttest, follow-up).

Similar logic was followed to construct the analysis sample on the Woodcock-Johnson of 149 Even Start adults and 65 control group adults.

Separate analyses were conducted for each of 41 separate outcome variables. While a smaller set of composite variables could have been derived using factor analytic techniques, we chose to present each outcome separately so that readers have a clear understanding of the meaning of each outcome. The analysis consisted of a comparison of Even Start and control families pooled across all 18 of the projects participating in the study. In other words, each family in the evaluation was given equal weight in the analysis.

For continuous variables, differences in gains for treatment and control groups were tested by conducting a t-test on the simple pre-post gain score for each group. For dichotomous variables, a gain score was created that could take on the values of 0 (no change), -1 (negative change), or 1 (positive change). A McNemar test was then used to assess the differences in gain between treatment and control groups. For data collected through teacher ratings and school records, which were collected only at post-test, we tested for treatment/control differences with t-tests on the post-test scores.

Although the data for this study are nested within sites, analyses to account for such nesting were not possible due to small sample sizes within each site.[1] Using the Peabody Picture Vocabulary test as an example, there was a total of 97 Even Start and 44 control children with usable longitudinal data. Within-site samples ranged from 1 to 13 Even Start children and from 1 to 6 control children. Using the Woodcock-Johnson Letter-Word Identification test as an example for adults, there were a total of 149 Even Start adults and 65 control adults with usable longitudinal data. Within-site samples ranged from 2 to 14 Even Start adults and from 1 to 10 control adults. Finally, note that the gain scores shown in the tables of results are simple pre-post differences.

Statistical Power. A total of 463 families were randomly assigned in the EDS – 309 to Even Start and 154 to the control group. For several reasons, the number of parents and children that enter into any given analysis of Even Start's effectiveness is smaller than these totals: some families could not be found at the time of pretesting, posttesting, and follow-up testing; some children accepted into the study were too young (under 2.5 years of age) to be pretested; and some parents and children were assessed but had missing data on selected items. The statistical power to detect effects in the EDS therefore varies across measures. To understand statistical power it is helpful to have a shared definition of an "effect" produced by a program such as Even start. As an example, if Even Start had an effect of .50 standard deviations on the PPVT it would mean that the average child in Even Start gained a half standard deviation more than the average child in the control group. This is equivalent to 7.5 standard score points, because the PPVT standard deviation is 15.0 standard score points.

Table 3.5 shows statistical power for some of the key outcome measures. It can be seen that at follow-up, the EDS still had high statistical power to detect large and medium-sized effects, but poor power to detect small effects. Statistical power is greater than .85 for effects of .50 standard deviation (sd) or larger, greater then .70 for effects of .40 sd, and .85 or greater for effects of .30 sd for parents. But statistical power is less than .60 for effects of .30 sd for children, and less than .50 for effects of .20 sd or smaller.

MEASURES USED IN THE EDS

Tables 3.6 and 3.7 list the outcome measures administered to children and parents, and Appendix A provides additional detail on each measure. Child outcomes were measured by

[1] When possible, nesting should be taken into account in the analysis of nested designs. Here, we have a nested design but a nested analysis was not conducted due to small within-site sample sizes. When nesting is not taken into account, as in the present case, treatment effects may be overestimated.

direct assessment of the child, parent report on the child's skills, teacher report on the child's behaviors in school, and a review of school records. The child measurement battery partially overlaps both with the ESPIRS that was administered to all Even Start families, and with measures for the Head Start FACES study. Parent outcomes were measured through direct assessment of literacy skills and parent self-report. Measurement of parent outcomes focused on language skills as opposed to the functional literacy or general skills that were measured in previous studies. Thus, the measurement battery is aligned with Even Start's objectives.

INSTRUCTION RECEIVED BY EVEN START AND CONTROL FAMILIES

Families that were assigned to Even Start participated in the program at whatever levels of intensity and for whatever duration they desired. Families assigned to the control group were not allowed to participate in Even Start for one year. However, during that year they took part in any other educational and social programs for which they qualified and sought out. After the one-year period, control families were eligible to enroll in Even Start, and some families in some EDS projects did so -- 25 control group families (from the total of 154) reported that they participated in Even Start between the posttest and follow-up measurement. These families were retained in the control group for all of the analyses reported in this document. We conducted a separate set of analyses excluding control families that reported participating in Even Start after the one-year period, and the analysis results were unchanged.

Parent Report of Instructional Services Received. The EDS parent interview included questions about the kinds of educational and social services in which families participated between pretest and posttest, and between posttest and follow-up. If Even Start families were participating fully in the program, and if parent report was a completely reliable measure, then the parent interview data ought to show us that very high percentages of Even Start families participate in each instructional service. This is not the case, as is demonstrated in Table 3.8 which shows the percentage of parents that reported participating in each instructional service between pretest and posttest, and between posttest and follow-up. Fewer Even Start families reported that they participated in early childhood education (57% vs. 72%), parenting education (17% vs. 28%), and adult education (40% vs. 59%) at the follow-up than at the posttest. This is a reasonable trend, given that Even Start families leave the program over time. However, the absolute percentages are quite low, given that all Even Start families are supposed to be participating in each of these instructional services.

A greater percentage of control parents reported participating in early childhood education (44% vs. 32%), parenting education (20% vs. 17%), and adult education (32% vs. 29%) at the follow-up than at the posttest. These increases make sense, since a small percentage of control parents reported that they joined Even Start after the posttest. In addition, more Even Start and control children participated in Head Start, kindergarten, and primary school at the follow-up than at the posttest. This is most likely a result of the increasing age of the children in both the Even Start and control groups (average child age was 3.2 years at pretest, 4.0 years at the posttest, and 4.9 years at the follow-up).

At the posttest, significantly more Even Start parents than control parents reported that their children participated in early childhood education (72% vs. 32%), and that they participated in adult education (59% vs. 29%) and in parenting education (28% vs. 17%). By the follow-up, significantly more Even Start parents than control parents still reported that their children participated in early childhood education (57% vs. 44%), and roughly equal percentages of Even Start and control parents reported participating in adult education (40% vs. 32%) and parenting education (17% vs. 20%).

Although the data reported above show that significantly more Even Start families than control families participated in instructional services, the participation rates for the two groups are not nearly as different as might be expected, indicating both that Even Start families did not participate fully in the program, and that control families were able to find competing instructional services. Thus, in order for Even Start families to perform better than control families on literacy-related outcome measures, the instructional services in which Even Start families participated would have to be much more effective than the instructional services in which control group families participated. This is unlikely since many Even Start projects build on instructional services that already exist in the community – the same services in which control group parents and children may have been participating.

Teacher Reports of Classroom Activities. Teachers of Even Start and control children who were in center-based preschool or kindergarten settings were asked to report on the kinds of classroom activities that were available to children on a daily or almost daily basis. As was the case at the posttest (St.Pierre, Ricciuti, Tao et al, 2003), the classrooms in which Even Start and control children participated were very similar with regard to literacy-related activities (Table 3.9). Almost all Even Start children in center-based classrooms had many different kinds of literacy-related activities available to them on a daily or almost daily basis including number concepts or counting (96%), letters of the alphabet or words (92%), and reading stories (98%). Almost the same percentages of children in control classrooms were offered these literacy-related activities. At the follow-up, children in Even Start classrooms were more likely than control children to work on naming colors, and solving puzzles or working with geometric forms. Thus, teacher reports show few differences between the classroom experiences received by Even Start and control children.

Length of Participation in Even Start. As described by St.Pierre, Ricciuti, Tao et al (2003), about one-third of the families that were randomly assigned to Even Start never participated enough to make it through Even Start's period of preparation (a time in which families can try out the program without being officially enrolled) and hence be included in the national ESPIRS data collection system. For the remaining families, ESPIRS participation data showed that about 50% of Even Start families in the EDS participated in instructional services for 8 or fewer months between the pretest and posttest, while the other 50% participated for more than 8 months (out of a maximum of 12 months). Follow-up participation data[2] showed that when given the opportunity to participate for up to 24 months, about half (48%) of the Even Start families participated for 10 or fewer months and half (52%) participated for more than 10

[2] ESPIRS data collection ceased after the 2000-2001 program year, and so ESPIRS participation data beyond the posttest was available only for families in the group of 11 EDS projects that began the study in the 1999-2000 program year.

months (Figure 3.2). Thus, the additional available year of instructional services resulted in only a couple of additional months of participation for the average Even Start EDS family.

Figure 3.1: Flow of Projects and Participants At Each Stage of the Evaluation, Including Information on Analysis Sample for the Child PPVT and Parent WJ-R

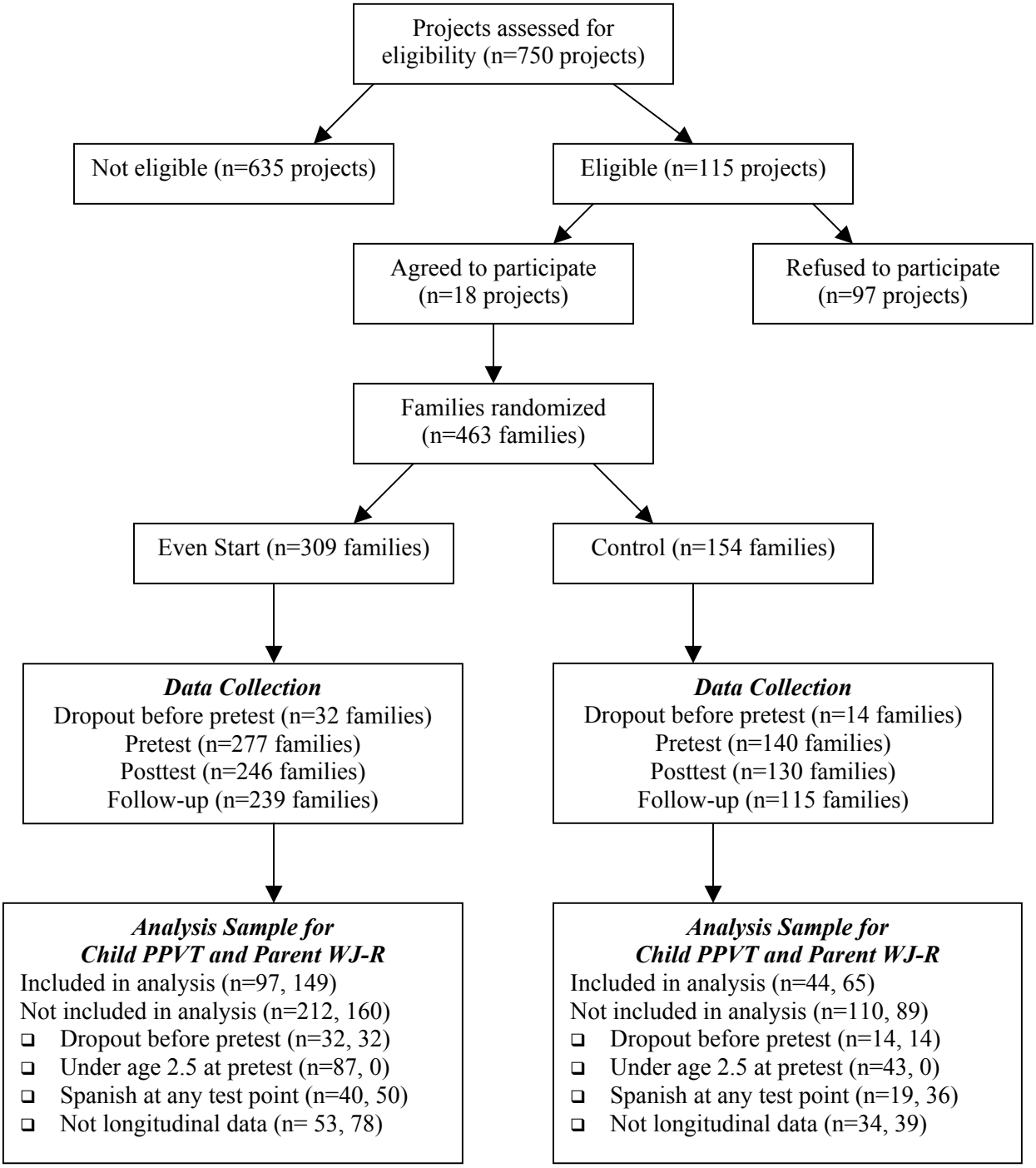


TABLE 3.1
DISPOSITION OF SAMPLE FOR THE EXPERIMENTAL DESIGN STUDY

SAMPLE GROUP OF FAMILIES	EVEN START N OF FAMILIES (% OF THOSE RANDOMIZED)	CONTROL N OF FAMILIES (% OF THOSE RANDOMIZED)	TOTAL N OF FAMILIES (% OF THOSE RANDOMIZED)
Total (18 projects)			
Randomized	309 (100%)	154 (100%)	463 (100%)
Assessed at pretest	277 (90%)	140 (91%)	417 (90%)
Assessed at posttest	246 (80%)	130 (84%)	376 (81%)
Assessed at follow-up	239 (77%)	115 (75%)	354 (76%)
First Cohort (11 projects)			
Randomized	201 (100%)	100 (100%)	301 (100%)
Assessed at pretest	176 (88%)	88 (88%)	264 (88%)
Assessed at posttest	150 (75%)	81 (81%)	231 (77%)
Assessed at follow-up	151 (75%)	73 (73%)	224 (74%)
Second Cohort (7 projects)			
Randomized	108 (100%)	54 (100%)	162 (100%)
Assessed at pretest	101 (94%)	52 (96%)	153 (94%)
Assessed at posttest	96 (89%)	49 (91%)	145 (90%)
Assessed at follow-up	88 (81%)	42 (78%)	130 (80%)

Note: Percentages are calculated as number tested divided by number randomly assigned.

Table reads: In the EDS, a total of 463 families were randomly assigned to Even Start or the control group.

TABLE 3.2
AGE OF EVEN START AND CONTROL GROUP CHILDREN AT THE TIME OF RANDOM ASSIGNMENT IN THE EDS

CHILD AGE (YEARS)	EVEN START		CONTROL	
	N	PERCENT	N	PERCENT
<1	47	15%	17	11%
1	22	7%	13	8%
2	39	13%	24	16%
3	65	21%	30	20%
4	70	23%	34	22%
5	37	12%	22	14%
6	15	5%	8	5%
7	11	3%	5	3%
8	3	1%	1	1%
Total	309	100%	154	100%

Note: Children were assigned through the Even Start age range.

Table reads: In the EDS, 15% of Even Start children were less than one year of age at the time of random assignment.

TABLE 3.3
PRETEST STATISTICS ON SELECTED VARIABLES FOR EVEN START AND CONTROL FAMILIES IN THE EDS

VARIABLE	EXPERIMENTAL DESIGN STUDY			EVEN START NATIONAL STATISTICS
	EDS EVEN START FAMILIES (N=309)	EDS CONTROL FAMILIES (N=154)	P-VALUE (EVEN START VS CONTROL)	
% Spanish spoken at home	65%	65%	.74	37%
% English spoken at home	30%	29%	.74	58%
% Hispanic or Latino	75%	75%	.84	46%
% parents with HS diploma or GED	16%	19%	.43	17%
% single parent households	16%	23%	.10	26%
% employed	27%	23%	.37	22%
% household income <$9,000	25%	28%	.29	39%

Note: National statistics are from the ESPIRS data collection.

Table reads: In the EDS, 75% of the Even Start families identified themselves as Hispanic or Latino.

TABLE 3.4
CHARACTERISTICS OF VARIOUS ANALYTIC SUBSETS OF FAMILIES IN THE EDS
(EVEN START AND CONTROL FAMILIES COMBINED)

FAMILY CHARACTERISTIC	SAMPLE RANDOMIZED (N=463)	SAMPLE ASSESSED AT PRETEST & POSTTEST (N=364)	SAMPLE ASSESSED AT PRETEST, POSTTEST, & FOLLOW-UP (N=317)
Parent had High School Diploma or GED at Enrollment	20.3%	20.0%	19.7%
Parent Received Public Assistance at Enrollment	59.4%	60.0%	61.0%
Household Structure at Enrollment			
Single Parent w/ Child & No Other Adult	18.1%	18.8%	18.1%
Couple w/ Child & No Other Adult	51.3%	52.4%	52.6%
Single Parent/Couple w/ Child & Other Adult	26.0%	25.2%	25.5%
Other	4.6%	3.6%	3.9%
Child Age at Enrollment (years)	3.3 years	3.3 years	3.3 years
Child Race/Ethnicity			
Hispanic	N/A	74.7%	75.4%
Not-Hispanic	N/A	25.3%	24.6%
Language Spoken at Home at Pretest			
English	N/A	29.6%	29.5%
Spanish	N/A	65.7%	66.7%
Both	N/A	4.7%	3.8%
Household Income at Pretest			
<$9,000	N/A	25.7%	25.2%
$9,000 - $25,000	N/A	66.0%	66.5%
>$25,000	N/A	8.3%	8.3%
Parent Employed at Pretest	N/A	24.8%	24.7%
PPVT-III – Child Pretest Standard Score	N/A	73.5 (mean)	73.4 (mean)

Note: The number of cases with child direct assessment data is smaller than the number with parent interview data. There were 163 children with pretest and posttest PPVT-III data, and 141 children with pretest, posttest, and follow-up PPVT-III data.

Table reads: 20.26% of the families randomized in the EDS had a high school diploma at the time of enrollment.

TABLE 3.5
STATISTICAL POWER ANALYSIS FOR THE EDS FOLLOW-UP

EFFECT SIZE	PPVT (CHILD) (N=97/44)	WJ-R (CHILD) (N=96/45)	STORY & PC (CHILD) (N=123/55)	WJ-R (ADULT) (N=149/65)	PARENT REPORT (CHILD) (N=207/91)
.80sd (large)	.99	.99	.99	.99	.99
.50sd (medium)	.86	.87	.92	.96	.99
.40sd (medium)	.71	.71	.79	.85	.94
.30sd (small)	.50	.50	.58	.64	.77
.20sd (small)	.29	.29	.34	.38	.48

Note: Assumes one-tail test (Even Start does better than control). The sample sizes reported here have longitudinal data (pretest, posttest and follow-up) for each measure.

Table reads: If Even Start children gain .80 standard deviations more than control children on the PPVT between pretest and follow-up, then there is a 99% chance that the EDS sample will allow us to conclude that difference is statistically significant.

TABLE 3.6
CHILD OUTCOME MEASURES

OUTCOME MEASURE	CHILD AGE	ANALYSIS VARIABLE(S)
Peabody Picture Vocabulary Test	2.5 years and older	Standard score (mean = 100, sd = 15)
Woodcock-Johnson (Revised)		
Letter-word identification	2.5 years and older	W score (mean of 500 for 5th graders)
Dictation	2.5 years and older	W score (mean of 500 for 5th graders)
Applied problems	2.5 years and older	W score (mean of 500 for 5th graders)
Incomplete words	2.5 years and older	W score (mean of 500 for 5th graders)
Sound blending	4.0 years and older	W score (mean of 500 for 5th graders)
Early development skills	2.5 years and older	W score (average of LWI, DIC, APP)
Story & Print Concepts	2.5 years and older	Total score, range is 0-11
Social Skills Rating System		
Problem behaviors	Preschool	Standard score (mean = 100, sd = 15)
Social skills	Preschool	Standard score (mean = 100, sd = 15)
Problem behaviors	Elementary	Standard score (mean = 100, sd = 15)
Social skills	Elementary	Standard score (mean = 100, sd = 15)
Vineland Communication Domain		
Teacher rating	2.5 years and older	Standard score (mean = 100, sd = 15)
Parent rating	2.5 years and older	Standard score (mean = 100, sd = 15)
Parent Report of Child Literacy		
Child knows alphabet	All children	Values are 0-1 (no/yes)
Child counts to 100 or more	All children	Values are 0-1 (no/yes)
Child knows colors	All children	Values are 0-1 (no/yes)
Extent to which child reads	2.5 years and younger	Values are 0-4 (high = more reading)
Extent to which child reads	2.6 years and older	Values are 0-9 (high = more reading)
Age appropriate writing skills	All children	Values are 0-2 (high = better writing)
Child knows print concepts	All children	Values are 0-9 (high = better knowledge)
School Records		
Attendance	Preschool	% days attended
Absences	Preschool	% days absent
Tardiness	Preschool	tardy any days (no/yes)
Special education	Preschool	special ed referral or IEP (no/yes)
Attendance	Elementary	% days attended
Absences	Elementary	% days absent
Tardiness	Elementary	tardy any days (no/yes)
Special education	Elementary	special ed referral or IEP (no/yes)

Table reads: The Peabody Picture Vocabulary Test was administered to children 2.5 years of age and older.

TABLE 3.7
PARENT AND FAMILY OUTCOME MEASURES

OUTCOME MEASURE	ANALYSIS VARIABLE(S)
Woodcock-Johnson (Revised)	
Letter-word identification	W score (mean of 500 for 5th graders)
Passage comprehension	W score (mean of 500 for 5th graders)
Word attack	W score (mean of 500 for 5th graders)
Reading vocabulary	W score (mean of 500 for 5th graders)
Reading comprehension	W score (average of PC, RV)
Reading skills	W score (average of LWI, WA)
Economic Self-Sufficiency	
Parent years of education (ESPIRS items)	Values are 1-18 (years of education)
Parent GED (ESPIRS items)	Values are 0-1 (no/yes to HS diploma or GED)
Parent employment (ESPIRS items)	Values are 0-1 (no/yes to employed)
Annual household income (ESPIRS items)	Values are 1-8 (categorized income)
Parent report of literacy at home	
Variety of parent reading at home	Values are 0-12 (high = more reading at home)
Variety of parent writing at home	Values are 0-11 (high = more writing at home)
Parent-child reading	
Read to child daily	Values are 0-1 (no/yes)
Amount of reading to/with child	Values are 0-3 (high = more reading)
Variety of reading to/with child	Values are 0-5 (high = more variety in reading)
Quality of reading to/with child	Values are 0-5 (high = better reading practices)
Literacy resources at home	
Number of books child has	Values are 0-5 (high = more books)
Variety of non-print resources at home	Values are 0-16 (high = more non-print resources)
Variety of print resources at home	Values are 0-5 (high = more print resources)
Parent support of child's school	
Parent participation in school activities	Values are 0-12 (high = more participation)
Parent opinion about school	Values are 0-14 (high = better opinion)

Notes: For this evaluation, raw scores were converted to W scores, which are a transformation of the Rasch ability scale. W scores are equal-interval scores, centered on a value of 500, which is the approximate average performance of beginning 5th grade students.

Table reads: The Woodcock-Johnson letter-word identification subtest was administered to parents; the analysis variable was a W score.

TABLE 3.8
PERCENT OF EVEN START AND CONTROL GROUP FAMILIES IN THE EDS, BY TYPE OF SOCIAL AND EDUCATIONAL SERVICE RECEIVED BETWEEN PRETEST, POSTTEST, AND FOLLOW-UP (BASED ON PARENT REPORT)

SERVICE	PERCENT OF EVEN START FAMILIES (N=215)		PERCENT OF CONTROL FAMILIES (N=102)	
	PRETEST TO POSTTEST	POSTTEST TO FOLLOW-UP	PRETEST TO POSTTEST	POSTTEST TO FOLLOW-UP
1. Fed/state cash assist. (e.g., TANF)	24%	18%	21%	18%
2. Employment training (e.g., JOBS)	4%	3%	5%	5%
3. Vocational education	3%	1%	3%	0%
4. Vocational rehabilitation	1%	0%	0%	0%
5. Parenting education classes	28%**	17%	17%	20%
6. Beginning ABE (grades 0-4)	5%**	4%	0%	1%
7. Intermediate ABE (grades 5-8)	1%	2%	0%	2%
8. Adult secondary educ (grades 9-12)	4%	5%	2%	3%
9. GED preparation	27%**	21%	16%	18%
10. English-as-a-second language	40%***	28%	14%	21%
11. Even Start	55%***	33%**	14%	22%
12. Head Start	8%	13%	5%	11%
13. Title I preschool	19%	13%	15%	13%
14. Early intervention special educ	2%	4%	3%	3%
15. Other preschool	7%	7%	5%	5%
16. Kindergarten	12%	24%	16%	27%
17. Primary school (grades 1-3)	5%	13%	5%	13%
Any adult education (6 or 7 or 8 or 9 or 10 above)	**59%*** **	**40%**	**29%**	**32%**
Any early childhood education (11 or 12 or 13 or 14 or 15 above)	**72%*** **	**57%** **	**32%**	**44%**

Note: (1) Percentages are based on parent report of services received. (2) Average age of children was 3.2 years at pretest, 4.0 years at posttest and 4.9 years at follow-up. (3) ** ES/C difference, p<.05. *** ES/C difference, p<.01. (4) While some control group parents reported that they participated in Even Start between pretest and posttest, no Even Start project submitted participation data on any control family for that time period. Thus, there is no confirmation that any control group families actually participated in Even Start between pretest and posttest.

Table reads: In the EDS, 28% of Even Start parents reported that they participated in parenting education classes between pretest and posttest.

TABLE 3.9
CLASSROOM ACTIVITIES FOR CHILDREN AT LEAST AGE THREE WHO WERE IN A CENTER-BASED PRESCHOOL OR KINDERGARTEN CLASSROOM AT THE TIME OF FOLLOW-UP DATA COLLECTION, BY EVEN START AND CONTROL GROUP STATUS

CLASSROOM ACTIVITIES	PERCENT OF CHILDREN FOR WHOM THE ACTIVITY WAS OFFERED DAILY OR ALMOST DAILY AT THE FOLLOW-UP MEASUREMENT POINT		
	EXPERIMENTAL DESIGN STUDY		
	EVEN START (N=112)	CONTROL (N=53)	HEAD START
Number concepts or counting	96%	92%	92%
Letters of the alphabet or words	92%	94%	69%
Block building or other construction work	78%	77%	97%
Visual arts (drawing, painting, play dough, etc)	79%	89%	96%
Reading stories	98%	100%	96%
Free play including dress up, make believe, etc	71%	74%	96%
Performing arts (music, movement, dance, etc)	67%	77%	92%
Solving puzzles, playing with geometric forms	77%*	64%	95%
Naming colors	87%*	75%	89%
Outdoor physical activities	71%	81%	93%
Indoor physical activities	46%	49%	90%
Health, hygiene or nutrition	57%	53%	93%
Science or nature	47%	36%	83%
Computer time	38%	42%	NA
Trips to local library	3%	0%	NA

Note: EDS data are based on follow-up teacher reports for preschool children in the 18 EDS projects. Head Start data are from U.S. Department of Health and Human Services (2001b, p18). NA = data not reported for Head Start. ES/C difference: * p<.10, ** p<.05, *** p<.001.

Table reads: In the EDS, 96% of Even Start children in center-based classrooms were exposed to number concepts or counting on a daily or almost daily basis at the follow-up measurement point.

Figure 3.2: Percent of Even Start Families that Made it Through the Period of Preparation and Were Enrolled for At Least "N" Months

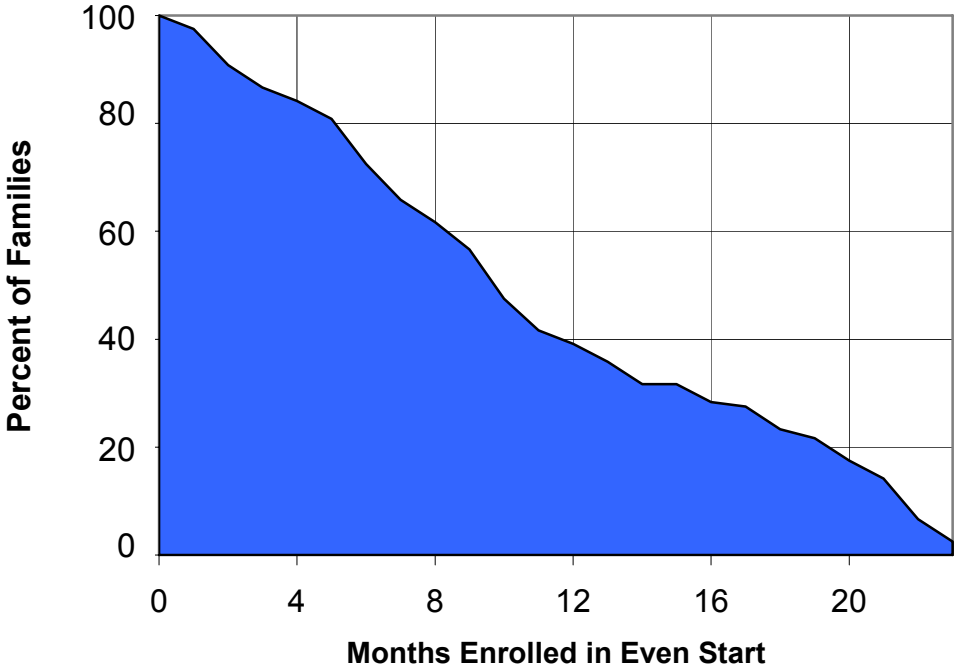


Figure reads: 48% of Even Start families in the EDS that made it through the period of preparation were enrolled for 10 months or less; the other 52% were enrolled in Even Start for more than 10 months.
Note: This figure is based on 120 Even Start families that enrolled in Fall 1999 and had the opportunity to participate for up to 24 months.

SECTION 4: EVALUATION FINDINGS

This section presents findings about the effectiveness of Even Start at enhancing child and parent literacy skills, based on a comparison of pretest data with follow-up data collected about 18 months later from families in the 18 EDS projects. Tables 4.1, 4.2, and 4.3 summarize the analytic results. In addition, Appendix B to this report contains graphical displays of Even Start and control group means for all outcome measures at pretest, posttest and follow-up.

COMPARISON OF FOLLOW-UP DATA WITH PRETEST DATA SHOWED THAT EVEN START CHILDREN AND PARENTS GAINED THE SAME AMOUNT, BUT NOT MORE, THAN CONTROL CHILDREN AND PARENTS

Similar to the findings documented in St.Pierre, Ricciuti, Tao, et al (2003), data collected from Even Start families in the EDS at follow-up showed that children and parents made gains on many different literacy measures. However, follow-up data collected from control group families showed that they performed as well as Even Start children and their parents. Follow-up data showed that children and parents in the control group made the same kinds of gains on literacy assessments, on parent reports of child literacy, on parent-child reading, on literacy resources at home, on family economic self sufficiency, and so on, that were seen for Even Start families. Thus, the Even Start projects included in this evaluation did not have any discernable impact on the language and literacy skills of children and parents that participated in the study.

As with the pretest-posttest analyses of EDS data reported by St.Pierre, Ricciuti, Tao, et al (2003), Even Start vs. control group follow-up differences were analyzed for almost 50 different outcome measures, and so we expected to observe some significant differences simply by chance. Four significant differences were found when comparing follow-up data to pretest data. These differences are not on the same measures for which we found significant differences in the pretest-posttest analyses. Further, three of the four significant differences would disappear if a less liberal significance criterion had been used (we used $p<.10$ for this study, to be sure that we identified all possible Even Start impacts). Because of the large number of outcomes assessed, because of inconsistency over time in the outcomes on which significant differences were found, and because of the liberal significance level used for these analyses ($p<.10$), we do not assign much meaning to the few significant differences that were observed, both when comparing pretest to posttest data and when comparing pretest to follow-up data.

Measures on Which Even Start and the Control Group Were No Different. No significant difference between the pretest and follow-up scores of Even Start and control group participants was found on 44 of the 48 outcome measures used in this evaluation. These include all 13 direct child outcomes (PPVT, WJR-Letter Word Identification, WJR-Dictation, WJR-Applied Problems, WJR-Incomplete Words, WJR-Sound Blending, WJR-Early Development Cluster, Story & Print Concepts, SSRS-Social Skills in Preschool, SSRS-Social Skills in

Elementary School, SSRS-Problem Behaviors in Preschool, SSRS-Problem Behaviors in Elementary School, Vineland Communication Domain), the eight outcomes derived from school records (percent days attended in preschool, percent days absent in preschool, percent children ever tardy in preschool, percent children in special education in preschool, percent days attended in elementary school, percent days absent in elementary school, percent children ever tardy in elementary school, percent children in special education in elementary school), five of seven parent reports of child literacy (percent of children who know the alphabet, percent of children who know colors, percent of children who can count to 100, extent to which children under 2 years, 6 months read, extent to which child knows print concepts), seven of nine direct parent outcomes (WJR-Letter Word ID, WJR-Passage Comprehension, WJR-Reading Vocabulary, WJR-Reading Comprehension, WJR-Basic Reading Skills, percent of employed parents, annual household income), both parent reports of parent literacy at home (variety of parent reading, variety of parent writing), the four parent reports of parent-child reading (percent of parents who read to child daily, amount of reading to child, variety of reading to child, quality of reading to child), the three parent reports of literacy resources at home (number of books child has, variety of non-print resources, variety of print resources), and the two parent reports of parent support of the child's school (parent participation in school and parent opinion about school).

Measures on Which Even Start Did Better Than The Control Group. Comparing pretest data to follow-up data, there were two parent-report measures on which Even Start children gained more than control children. Parents of Even Start children reported larger gains than parents of control children on the extent to which their children read and on the extent to which their children exhibited age-appropriate writing activities than did parents of control children. The scale measuring extent to which children read has values from 0 to 9. The value of the scale increases by 1 if the child pretends to read, reads for enjoyment, has memorized a book, has a favorite book, can follow written directions, can describe something learned through reading, rereads sentences, reads or pretends to read to someone else, or recognizes own first name in writing/print. The scale measuring age-appropriate writing skills has values from 0 to 2. The value of this scale increases by 1 if the child pretends to write or writes some letters of the alphabet.

The Even Start vs. control group differences on these two variables were deemed statistically significant only by using a liberal significance criterion ($p<.10$) and did not translate into educationally large differences. At follow-up, Even Start children scored 6.07 on the parent-report scale measuring extent of reading, while control group children scored 6.10 (scale ranges from 0 to 9, sd = 2.22). At follow-up, Even Start children scored 1.53 on the parent-report measure of age-appropriate writing activities, while control group children scored 1.48 (scale ranges from 0-2, sd = 0.66).

At the follow-up, there were two measures on which Even Start parents gained more than control parents: the Woodcock-Johnson Word Attack subscale and attainment of a GED. On the Word Attack subscale, Even Start adults gained an average of 6.38 points between pretest and follow-up, while control adults gained an average of 2.50 points, which corresponds to an effect size of about .29 standard deviations ($p<.10$). Word Attack measures a parent's skill in applying phonic and structural analysis skills to the pronunciation of unfamiliar printed words. The parent reads aloud letter combinations that are linguistically logical but that form nonsense words or

low-frequency words in English. In addition, more Even Start than control group adults attained a GED between pretest and follow-up (9.9% vs. 2.5%, respectively, of those who reported not having a high school diploma or GED at pretest).[3] This is the only finding that is statistically significant at a traditional level ($p<.05$), and is consistent with previous Even Start research showing that the program has a positive effect on GED attainment (St.Pierre, Swartz, Gamse, Murray, Deck & Nickel, 1995).

Changes in Findings From the Pre-Post Analyses. When assessing the evaluation findings based on analyses of pretest vs. follow-up data we see that the only significant effect observed in analyses of pretest vs. posttest data (St.Pierre, Ricciuti, Tao, et al, 2003) is not replicated in the follow-up results. At the first posttest (in elementary school but not in preschool), Even Start children were rated (using the Social Skills Rating System) by their teachers as exhibiting significantly fewer problem behaviors than control group children. At the follow-up, this difference was no longer significant. It is difficult to interpret changes in teacher ratings from the first posttest to the follow-up since children were in different classrooms and were probably rated by different teachers. Further, additional children became old enough to enter preschool, and to have the opportunity to be rated.

EVEN START CHILDREN AND PARENTS MADE GAINS BETWEEN PRETEST AND FOLLOW-UP

As was seen by comparing pretest to posttest outcomes, Even Start children and parents improved their literacy levels between the pretest and follow-up measurements (Table 4.3). On standardized direct assessments (PPVT, Woodcock-Johnson subtests), children gained between 0.50 and almost 2.0 standard deviations between pretest and the follow-up, depending on the measure. Parent reports of children's literacy skills also showed an increasing level of skill between pretest and follow-up, in areas such as knowing the alphabet, knowledge of colors, counting ability, extent to which children engage in reading and writing activities, and understand print concepts. Parents also gained over time in their literacy skills, showing significant gains on each of the Woodcock Johnson subtests, and in the variety of the kinds of items they read and write. In addition, more parents attained a GED by the follow-up. Parents' reports of the quality of their reading activities with their children improved, as did the number and variety of resources parents report providing to their children, and their reported participation in activities at their children's schools.

With the exceptions noted in the section above, these gains were not greater than those shown by control group children and parents. Hence, in spite of the gains made by children and adults, Even Start did not have a significant impact on these language and literacy skills.

Of interest is the fact that between pretest and posttest, the average Even Start child and the average control group child gained about 4.0 standard score points on the PPVT. This is comparable to the average gain of 4.2 standard score points on the PPVT for children who spent a year in Head Start, as reported by Zill, Resnick & O'Donnell (2001) who analyzed data from

[3] For this analysis, cases were deleted when the reported GED status was impossible (i.e., if the parent reported having a GED at pretest but not at posttest). This represented 12.8% of controls and 12.2% of Even Start parents.

the Head Start FACES study (Figure 4.1). This suggests that the observed gains are probably due to some combination of normal development and the effect of being in Even Start, being in Head Start, or, for the control group, being in a mix of preschool interventions.

EVEN START CHILDREN AND PARENTS STILL SCORED LOW COMPARED TO NATIONAL NORMS

At follow-up, Even Start children and parents scored low relative to national norms. Children scored on average at the 9th percentile on the PPVT-III, at the 25th percentile on the WJR Letter-Word Identification, at the 27th percentile on the WJR Applied Problems subscale, at the 16th percentile on the WJR Dictation subscale, at the 12th percentile on the WJR Incomplete Words subscale, at the 10th percentile on the WJR Sound Blending subscale, and at the 16th percentile on the WJR Early Development Skills scale. Adults also scored low at follow-up, relative to national norms. They scored on average at the 5th percentile on WJR Letter-Word Identification, at the 1st percentile on WJR Passage Comprehension and Reading Comprehension, at the 9th percentile for WJR Basic Reading Skills, at the 1st percentile for WJR Reading Vocabulary, and at the 16th percentile for WJR Word Attack.

DOES AMOUNT OF PARTICIPATION MAKE A DIFFERENCE?

The EDS is a randomized experiment, and if we examine gains for subgroups that participate a lot or a little, we lose the advantages offered by randomization and open up the findings to competing interpretations. Although cautious about the potential pitfalls of this approach, the previous report from this evaluation (St.Pierre et al, 2003) included analyses of the relationship between amount of participation and outcomes for Even Start children and parents based on pretest and posttest outcome data. Findings from those previous analyses are summarized below (these analyses were not replicated with the follow-up data).

One analysis eliminated all Even Start children whose parents reported that they did not receive early childhood services, as well as all control group children whose parents reported that they did receive early childhood services. The data showed that segmenting the sample in this fashion did not change the evaluation findings.

A second analysis investigated the relationship between child and parent literacy outcomes and a host of variables including monthly hours of child participation in early childhood education, monthly hours of parent participation in adult education and parenting education, and family background factors. We found (1) no relationship between the amount that parents participated in adult education and their scores on literacy outcomes; (2) children who participated more intensively in early childhood education scored higher on literacy outcomes; (3) parents who participated more intensively in parenting education had children who score higher on literacy outcomes; and (4) more intensive participation in adult education is associated with lower scores on some child outcomes. It is important to remember that amount of participation was not manipulated experimentally, and so factors other than participation in Even Start may be responsible for the observed relationships.

LIMITATIONS AND CONCLUSIONS

The EDS used a random assignment design, the strongest approach for estimating program impacts. However, projects volunteered for this study instead of being randomly selected, so we cannot generalize to the Even Start population on a strict statistical basis. EDS families are more likely than the population of Even Start families to be Hispanic, and EDS projects are more likely than the population of Even Start projects to be in urban areas. Thus, findings from the EDS are most relevant to urban projects that serve large numbers of Hispanic/ESL families. In addition, to be included in the analysis for this study children and parents were required to have a complete set of data for a given outcome variable (i.e., data at pretest, posttest, and follow-up) with all direct assessments administered in English. This limits generalizability to families that are relatively stable over a two-year period as well as children and parents who were comfortable enough with English to be assessed in that language.

As was the case at posttest, Even Start children and parents made gains on a variety of literacy assessments and other measures at follow-up, but they did not gain more than children and parents in the control group. It had been hypothesized that follow-up data might show positive effects because (1) Even Start families had the opportunity to participate for a second school year, and (2) change in some outcomes might require more time than others. However, the follow-up data do not support either of these hypotheses.

Several reasons have been advanced for the lack of documented effectiveness of Even Start family literacy projects (St.Pierre, et al, 2003). Some of these include that instructional services may not be sufficiently intensive, the quality of instructional services may be insufficient, and that families do not participate enough.

Table 4.1: Summary of Even Start and Control Group Means at Pre-test, Post-test, and Follow-up

Outcome Measure	Mean Values					
	Pretest		Post-test		Follow-up	
	Even Start	Control	Even Start	Control	Even Start	Control
Child Outcomes						
Peabody Picture Vocabulary Test	72.89	74.48	77.21	76.77	80.69	82.22
WJR: Letter-Word Identification	359.13	359.60	368.00	369.42	392.68	397.47
WJR: Dictation	327.67	342.36	352.06	363.61	391.41	403.50
WJR: Applied Problems	389.81	391.07	407.55	417.26	430.43	436.51
WJR: Incomplete Words	439.65	444.60	450.24	461.09	458.80	459.29
WJR: Sound Blending	443.82	450.88	456.55	461.84	456.86	458.20
WJR: Early Development	357.70	362.80	374.87	382.75	402.18	412.50
Story & Print Concepts	4.57	4.71	5.29	5.67	7.53	7.96
SSRS: Soc Skills-Preschool	NA	NA	99.89	96.74	101.13	97.97
SSRS: Soc Skills- Elementary	NA	NA	102.74	100.90	102.66	103.39
SSRS: Problem Behavior-Preschool	NA	NA	97.57	97.53	100.77	97.38
SSRS: Problem Behavior-Elementary	NA	NA	95.72	101.00	98.77	97.90
Vineland Communication Domain	NA	NA	90.57	89.95	91.19	94.51
Child School Record Outcomes – Preschool						
Percent Days Attended (mean)	NA	NA	65.82	68.73	75.80	79.84
Percent Days Absent (mean)	NA	NA	10.43	9.15	10.77	8.7
Child Ever Tardy (%)	NA	NA	10.20	6.25	10.00	7.14
Child in Special Ed (%)	NA	NA	7.22	7.14	17.39	14.81
Child School Record Outcomes – Elementary						
Percent Days Attended (mean)	NA	NA	92.49	95.40	92.64	94.34
Percent Days Absent (mean)	NA	NA	5.89	4.58	4.83	4.48
Child Ever Tardy (%)	NA	NA	17.39	25.99	27.78	33.33
Child in Special Ed (%)	NA	NA	12.19	5.88	9.84	14.71
Parent Report of Child Literacy						
Child Knows Alphabet(%)	8.21	6.59	13.04	17.58	27.54	30.77
Child Counts to 100 (%)	4.90	8.06	11.19	20.97	30.77	46.77
Child Knows Colors (%)	42.55	51.61	60.99	64.52	81.56	83.87
Extent Child Reads (child age <2,6 yrs)	0.22	0.89	1.48	1.67	2.09	2.22
Extent Child Reads (child age >2,6 yrs)	4.76	5.30	5.34	5.56	6.07	6.10
Age-Appropriate Writing	1.07	1.61	1.30	1.42	1.53	1.48
Child Knows Print Concepts	3.07	3.18	3.71	3.18	4.44	4.91
Parent Outcomes						
WJR: Letter-Word ID	496.40	498.69	501.10	503.65	503.93	503.46
WJR: Passage Comprehension	475.66	481.72	479.30	485.47	481.59	488.22
WJR: Word Attack	488.48	491.18	493.11	494.44	494.86	493.68
WJR: Reading Vocabulary	482.27	488.82	485.48	491.90	489.01	496.28
WJR: Reading Comprehension	478.88	485.65	482.29	489.25	485.15	492.63
WJR: Basic Reading Skills	492.46	496.37	497.09	500.74	499.37	500.24
Parent GED Attainment (%)	8.51	9.09	12.23	9.09	17.55	11.36
Parent Employment (%)	26.05	21.78	32.56	33.66	30.23	30.69
Annual Household Income	5.03	4.88	5.10	5.03	5.39	5.20
Parent Report of Parent Literacy at Home						
Variety of Parent Reading	7.17	6.90	7.31	7.48	7.62	7.68
Variety of Parent Writing	3.27	3.14	4.13	3.63	4.61	4.06
Parent Report of Parent-Child Reading						
Parent Reads Child Daily (%)	29.44	28.71	26.64	20.79	27.57	23.76
Amount of Reading to Child	0.57	0.53	0.57	0.44	0.55	0.51
Variety of Reading to Child	1.67	1.83	1.77	1.95	1.78	1.90
Quality of Reading to Child	2.79	2.80	3.26	3.44	3.65	3.52
Parent Report of Literacy Resources at Home						
Number of Books Child Has	2.07	2.16	2.42	2.47	2.65	2.68
Variety of Non-Print Resources	9.14	9.15	10.07	10.01	10.29	10.29
Variety of Print Resources	2.70	2.97	3.00	3.04	3.00	3.15
Parent Report of Parent Support of Child's School						
Parent Participation in School	2.81	2.95	4.60	4.35	4.46	4.15
Parent Opinion About School	12.48	12.50	12.62	12.42	13.05	12.17

Note: See notes at end of table.

Table 4.1 (continued): Summary of Even Start and Control Group Standard Deviations at Pre-test, Post-test, and Follow-up

Outcome Measure	Standard Deviations					
	Pretest		Post-test		Follow-up	
	Even Start	Control	Even Start	Control	Even Start	Control
Child Outcomes						
Peabody Picture Vocabulary Test	15.61	17.14	16.83	15.88	15.26	15.83
WJR: Letter-Word Identification	27.25	28.72	35.63	31.32	38.15	40.50
WJR: Dictation	66.01	58.26	58.63	58.72	50.73	43.71
WJR: Applied Problems	33.39	39.61	32.12	31.97	27.15	35.01
WJR: Incomplete Words	21.57	22.69	21.90	20.45	21.49	22.41
WJR: Sound Blending	19.65	22.16	19.01	18.72	19.10	14.54
WJR: Early Development	36.14	35.20	36.20	34.83	33.46	35.41
Story & Print Concepts	3.22	3.40	3.73	3.68	3.23	3.14
SSRS: Soc Skills-Preschool	NA	NA	16.85	16.34	18.30	16.39
SSRS: Soc Skills- Elementary	NA	NA	14.00	14.70	14.25	15.07
SSRS: Problem Behavior-Preschool	NA	NA	13.75	12.08	15.03	13.72
SSRS: Problem Behavior-Elementary	NA	NA	10.07	13.47	14.08	13.45
Vineland Communication Domain	NA	NA	15.08	17.71	18.06	19.08
Child School Record Outcomes – Preschool						
Percent Days Attended (mean)	NA	NA	21.00	25.00	17.10	17.20
Percent Days Absent (mean)	NA	NA	11.00	7.00	8.90	8.40
Child Ever Tardy (%)	NA	NA	NA	NA	NA	NA
Child in Special Ed (%)	NA	NA	NA	NA	NA	NA
Child School Record Outcomes – Elementary						
Percent Days Attended (mean)	NA	NA	8.65	6.36	11.90	7.80
Percent Days Absent (mean)	NA	NA	5.03	4.81	4.50	3.90
Child Ever Tardy (%)	NA	NA	NA	NA	NA	NA
Child in Special Ed (%)	NA	NA	NA	NA	NA	NA
Parent Report of Child Literacy						
Child Knows Alphabet(%)	NA	NA	NA	NA	NA	NA
Child Counts to 100 (%)	NA	NA	NA	NA	NA	NA
Child Knows Colors (%)	NA	NA	NA	NA	NA	NA
Extent Child Reads (child age <2,6 yrs)	0.42	1.36	1.24	1.41	1.20	1.09
Extent Child Reads (child age >2,6 yrs)	2.27	2.11	2.23	2.09	2.12	2.15
Age-Appropriate Writing	0.66	0.66	0.66	0.61	0.59	0.56
Child Knows Print Concepts	1.98	1.72	1.84	1.89	2.10	2.21
Parent Outcomes						
WJR: Letter-Word ID	32.32	32.31	33.00	34.26	31.89	33.79
WJR: Passage Comprehension	33.78	31.45	34.40	30.28	30.72	27.96
WJR: Word Attack	20.74	16.83	21.46	18.13	22.61	18.27
WJR: Reading Vocabulary	28.60	25.87	28.46	22.78	26.19	22.11
WJR: Reading Comprehension	30.45	27.69	30.81	25.12	27.52	23.96
WJR: Basic Reading Skills	25.13	21.03	25.79	21.28	26.11	21.76
Parent GED Attainment (%)	NA	NA	NA	NA	NA	NA
Parent Employment (%)	NA	NA	NA	NA	NA	NA
Annual Household Income	2.02	2.10	2.13	2.23	2.05	2.13
Parent Report of Parent Literacy at Home						
Variety of Parent Reading	2.70	3.01	2.75	2.75	2.59	2.55
Variety of Parent Writing	2.32	2.81	2.45	2.51	2.55	2.64
Parent Report of Parent-Child Reading						
Parent Reads Child Daily (%)	NA	NA	NA	NA	NA	NA
Amount of Reading to Child	0.79	0.74	0.77	0.71	0.73	0.73
Variety of Reading to Child	1.38	1.52	1.46	1.59	1.50	1.66
Quality of Reading to Child	1.65	1.72	1.58	1.46	1.36	1.40
Parent Report of Literacy Resources at Home						
Number of Books Child Has	1.13	1.25	1.09	1.15	1.17	1.19
Variety of Non-Print Resources	3.10	3.25	3.31	3.07	2.84	3.16
Variety of Print Resources	1.23	1.37	1.21	1.22	1.24	1.42
Parent Report of Parent Support of Child's School						
Parent Participation in School	2.02	2.85	2.44	3.00	2.72	3.27
Parent Opinion About School	2.07	1.88	1.83	1.56	1.85	3.41

Note: See notes at end of table.

Table 4.1 (continued): Summary of Even Start and Control Group Sample Size at Pre-test, Post-test, and Follow-up

Outcome Measure	Sample Size					
	Pretest		Post-test		Follow-up	
	Even Start	Control	Even Start	Control	Even Start	Control
Child Outcomes						
Peabody Picture Vocabulary Test	97	44	97	44	97	44
WJR: Letter-Word Identification	96	45	96	45	96	45
WJR: Dictation	88	44	88	44	88	44
WJR: Applied Problems	89	43	89	43	89	43
WJR: Incomplete Words	89	45	89	45	89	45
WJR: Sound Blending	44	25	44	25	44	25
WJR: Early Development	89	44	89	44	89	44
Story & Print Concepts	122	55	122	55	122	55
SSRS: Soc Skills-Preschool	NA	NA	88	19	71	29
SSRS: Soc Skills- Elementary	NA	NA	39	20	73	41
SSRS: Problem Behavior-Preschool	NA	NA	89	19	71	29
SSRS: Problem Behavior-Elementary	NA	NA	39	20	73	41
Vineland Communication Domain	NA	NA	129	38	147	70
Child School Record Outcomes – Preschool						
Percent Days Attended (mean)	NA	NA	83	22	65	26
Percent Days Absent (mean)	NA	NA	75	25	62	22
Child Ever Tardy (%)	NA	NA	49	16	30	14
Child in Special Ed (%)	NA	NA	97	28	69	27
Child School Record Outcomes – Elementary						
Percent Days Attended (mean)	NA	NA	39	15	70	36
Percent Days Absent (mean)	NA	NA	39	17	71	37
Child Ever Tardy (%)	NA	NA	28	8	36	24
Child in Special Ed (%)	NA	NA	41	17	61	34
Parent Report of Child Literacy						
Child Knows Alphabet(%)	207	91	207	91	207	91
Child Counts to 100 (%)	143	62	143	62	143	62
Child Knows Colors (%)	141	62	141	62	141	62
Extent Child Reads (child age <2,6 yrs)	23	9	23	9	23	9
Extent Child Reads (child age >2,6 yrs)	143	63	143	63	143	63
Age-Appropriate Writing	210	93	210	93	210	93
Child Knows Print Concepts	38	11	38	11	38	11
Parent Outcomes						
WJR: Letter-Word ID	149	65	149	65	149	65
WJR: Passage Comprehension	145	60	145	60	145	60
WJR: Word Attack	149	62	149	62	149	62
WJR: Reading Vocabulary	147	61	147	61	147	61
WJR: Reading Comprehension	145	60	145	60	145	60
WJR: Basic Reading Skills	149	62	149	62	149	62
Parent GED Attainment (%)	172	80	172	80	172	80
Parent Employment (%)	215	101	215	101	215	101
Annual Household Income	157	69	157	69	157	69
Parent Report of Parent Literacy at Home						
Variety of Parent Reading	215	102	215	102	215	102
Variety of Parent Writing	215	102	215	102	215	120
Parent Report of Parent-Child Reading						
Parent Reads Child Daily (%)	214	101	214	101	214	101
Amount of Reading to Child	215	102	215	102	215	102
Variety of Reading to Child	215	102	215	102	215	102
Quality of Reading to Child	211	101	211	101	211	101
Parent Report of Literacy Resources at Home						
Number of Books Child Has	214	101	214	101	214	101
Variety of Non-Print Resources	214	100	214	100	214	100
Variety of Print Resources	215	102	215	102	215	102
Parent Report of Parent Support of Child's School						
Parent Participation in School	70	20	70	20	70	20
Parent Opinion About School	21	12	21	12	21	12

Note: See notes at end of table.

Table 4.1: Summary of Even Start and Control Group Means, Standard Deviations, and Sample Size at Pre-test, Post-test, and Follow-up

Table reads: Even Start children averaged 72.89 points on the PPVT at pretest.

Note: NA = not applicable; these measures were not administered at pretest. Sample sizes vary across measures for a variety of reasons including the following:

- WJR Sound Blending started at child age 4.0; Vineland started at child age 3.0. N's on parent reports also vary depending on the age of the child.
- Story and Print Concepts and Vineland were translated into Spanish; data were combined with data from English speakers.
- SSRS and Child School Record Outcomes for elementary school children have n's that increase over time as children age into elementary school. N's for these measures decrease over time for preschoolers.
- Child Ever Tardy for preschoolers comes from school records and some schools do not maintain that data element.

TABLE 4.2: SUMMARY OF EDS GAINS AND EFFECT SIZES (PRETEST VS. FOLLOW-UP)

MEASURE	GAIN (FOLLOW-UP – PRETEST) EVEN START	GAIN (FOLLOW-UP – PRETEST) CONTROL	DIFF IN GAIN (ES-C)	STD DEV OF MEASURE	EFFECT SIZE
Child Outcomes					
PPVT	7.80	7.75	0.05	15.0	.00
WJR: Letter-Word ID	33.55	37.87	-4.31	24.2	-.18
WJR: Dictation	63.74	61.14	2.60	33.5	.08
WJR: Applied Problems	40.62	45.44	-4.82	21.3	-.23
WJR: Incomplete Words	19.15	14.69	4.46	18.9	.24
WJR: Sound Blending	13.05	7.32	5.73	17.2	.33
WJR: Early Development	44.48	49.70	-5.22	22.5	-.23
Story & Print Concepts	2.96	3.25	-0.29	3.2	-.09
SSRS: Soc Skills – Preschool	NA	NA	3.16	15.0	.21
SSRS: Soc Skills – Elementary	NA	NA	-0.73	15.0	-.05
SSRS: Prob Beh – Preschool	NA	NA	3.39	15.0	.23
SSRS: Prob Beh – Elementary	NA	NA	0.87	15.0	.06
Vineland Communication	NA	NA	-3.32	15.0	-.22
School Record Outcomes – Preschool					
Percent Days Attended (mean)	NA	NA	-4.04	17.08	-.24
Percent Days Absent (mean)	NA	NA	2.07	8.88	.23
Child Ever Tardy (%)	NA	NA	2.86	NA	1.44
Child in Special Education (%)	NA	NA	2.58	NA	1.21
School Record Outcomes – Elementary					
Percent Days Attended (mean)	NA	NA	-1.70	11.92	-.14
Percent Days Absent (mean)	NA	NA	0.35	4.48	.08
Child Ever Tardy (%)	NA	NA	-5.55	NA	-.77
Child in Special Education (%)	NA	NA	-4.87	NA	-.63
Parent Report of Child Literacy					
Child Knows Alphabet (%)	19.32	24.17	-4.85	NA	-.80
Child Counts to 100 (%)	25.87	38.71	-12.84	NA	-.51
Child Knows Colors (%)	39.01	32.26	6.75	NA	.99
Extent Child Reads (<2,6 yrs)	1.87	1.33	0.54	1.10	.49
Extent Child Reads (>2,6 yrs)	1.31	0.79	0.52	2.22	**.23***
Age-Appropriate Writing	0.46	0.32	0.13	0.66	**.20***
Child Knows Print Concepts	1.37	1.73	-0.36	1.93	-.19
Parent Outcomes					
WJR: Letter-Word ID	7.52	4.77	2.75	21.4	.13
WJR: Passage Comprehension	5.92	6.50	-0.58	16.1	-.04
WJR: Word Attack	6.38	2.50	3.88	13.5	**.29***
WJR: Reading Vocabulary	6.74	7.46	-0.72	16.3	-.04
WJR: Reading Comprehension	6.28	6.98	-0.71	14.9	-.05
WJR: Basic Reading Skills	6.91	3.87	3.04	15.0	.20
Parent GED Attainment (%)	9.88	2.50	7.38	NA	**4.28****
Parent Employment (%)	4.18	8.91	-4.73	NA	1.06
Annual Household Income	0.36	0.32	0.04	2.05	.02
Parent Report of Parent Literacy at Home					
Variety of Parent Reading	0.45	0.77	-0.33	2.73	-.12
Variety of Parent Writing	1.33	0.91	0.42	2.33	.18
Parent Report of Parent-Child Reading					
Parent Reads Child Daily (%)	-1.87	-4.95	3.08	NA	1.23
Amount of Reading to Child	-0.02	-0.02	0.00	0.80	.00
Variety of Reading to Child	0.11	0.07	0.04	1.39	.03
Quality of Reading to Child	0.87	0.72	0.14	1.63	.09
Parent Report of Literacy Resources at Home					
Number of Books Child Has	0.58	0.52	0.05	1.16	.04
Variety of Non-Print Resources	1.15	1.14	0.01	3.11	.00
Variety of Print Resources	0.29	0.18	0.12	1.22	.10
Parent Report of Parent Support of Child's School					
Parent Participation in School	1.64	1.20	0.44	1.94	.23
Parent Opinion About School	0.57	-0.33	0.90	2.81	.32

Note: NA = not administered at pretest; effect calculated by comparing follow-up means. Effect for continuous variables calculated as (ES-C)/(sd). WJ-R sd is for children age 4, adults age 30-39, from Examiner's Manual. PPVT, SSRS, Vineland sd is 15 (norm), for other measures sd is from pretest. Binary variable effect sizes are odds ratios. For binary outcomes measured over time, effect size is adjusted odds ratio, controlling for pretest. * p<.10, ** p<.05, *** p<.01.

Table reads: Even Start children gained an average of 7.80 scale score points on the PPVT between pretest and follow-up.

TABLE 4.3: SUMMARY OF EVEN START GAINS AND IMPACTS (PRETEST VS. FOLLOW-UP)		
OUTCOME MEASURE	SIGNIFICANT EVEN START GAIN? (EVEN START GAIN SIGNIFICANTLY GREATER THAN ZERO)	SIGNIFICANT EVEN START IMPACT? (EVEN START GAIN SIGNIF GREATER THAN CONTROL GROUP GAIN)
Child Outcomes		
PPVT	p<.001 (.52 sd)	No significant impact
WJR: Letter-Word ID	P<.001 (1.39 sd)	No significant impact
WJR: Dictation	P<.001 (1.90 sd)	No significant impact
WJR: Applied Problems	P<.001 (1.91 sd)	No significant impact
WJR: Incomplete Words	p<.001 (1.01 sd)	No significant impact
WJR: Sound Blending	p<.001 (.76 sd)	No significant impact
WJR: Early Development	p<.001 (1.98 sd)	No significant impact
Story & Print Concepts	p<.01 (.92 sd)	No significant impact
SSRS: Soc Skills – Preschool	NA	No significant impact
SSRS: Soc Skills – Elementary	NA	No significant impact
SSRS: Problem Behavior – Preschool	NA	No significant impact
SSRS: Problem Behavior - Elementary	NA	No significant impact
Vineland	NA	No significant impact
School Record Outcomes – Preschool		
Percent Days Attended (mean)	No significant gain	No significant impact
Percent Days Absent (mean)	No significant gain	No significant impact
Child Ever Tardy (%)	No significant gain	No significant impact
Child in Special Education (%)	No significant gain	No significant impact
School Record Outcomes – Elementary		
Percent Days Attended (mean)	No significant gain	No significant impact
Percent Days Absent (mean)	No significant gain	No significant impact
Child Ever Tardy (%)	No significant gain	No significant impact
Child in Special Education (%)	No significant gain	No significant impact
Parent Report of Child Literacy		
Child Knows Alphabet (%)	p<.001 (19.3%)	No significant impact
Child Counts to 100 (%)	p<.001 (25.9%)	No significant impact
Child Knows Colors (%)	p<..001 (39.0%)	No significant impact
Extent Child Reads (<2,6 yrs)	p<.001 (1.70 sd)	No significant impact
Extent Child Reads (>2,6 yrs)	p<.001 (.59 sd)	**ES>C, p<.10, .23 sd**
Age-Appropriate Writing	p<.001 (.70 sd)	**ES>C, p<.10, .20 sd**
Child Knows Print Concepts	p<.001 (.71 sd)	No significant impact
Parent Outcomes		
WJR: Letter-Word ID	p<.001 (.35 sd)	No significant impact
WJR: Passage Comprehension	p<.001 (.37 sd)	No significant impact
WJR: Word Attack	p<.001 (.47 sd)	**ES>C, p<.10, .29 sd**
WJR: Reading Vocabulary	p<.001 (.41 sd)	No significant impact
WJR: Reading Comprehension	p<.001 (.42 sd)	No significant impact
WJR: Basic Reading Skills	p<.001 (.46 sd)	No significant impact
Parent GED Attainment	p<.001 (9.88%)	**ES>C, p<.05, 7.38%**
Parent Employment	No significant gain	No significant impact
Annual Household Income	p<.05 (.18 sd)	No significant impact
Parent Report of Parent Literacy at Home		
Variety of Parent Reading	p<.05 (.16 sd)	No significant impact
Variety of Parent Writing	p<.001 (.57 sd)	No significant impact
Parent Report of Parent-Child Reading		
Parent Reads to Child Daily (%)	No significant gain	No significant impact
Amount of Reading to Child	No significant gain	No significant impact
Variety of Reading to Child	No significant gain	No significant impact
Quality of Reading to Child	p<.001 (.53 sd)	No significant impact
Parent Report of Literacy Resources at Home		
Number of Books Child Has	p<.001 (.50 sd)	No significant impact
Variety of Non-Print Resources	p<.001 (.37 sd)	No significant impact
Variety of Print Resources	p<.01 (.24 sd)	No significant impact
Parent Report of Parent Support of Child's School		
Parent Participation in School	p<.001 (.85 sd)	No significant impact
Parent Opinion About School	No significant gain	No significant impact
Note: NA = measure not administered at pretest; impact calculated by comparing means at follow-up.		
Table reads: Even Start children gained a significant amount on the PPVT, but not more than control children.		

Figure 4.1: Pretest and Posttest Standard Scores on the PPVT for Even Start and Control Children in the EDS, and for Children in the Head Start FACES Study

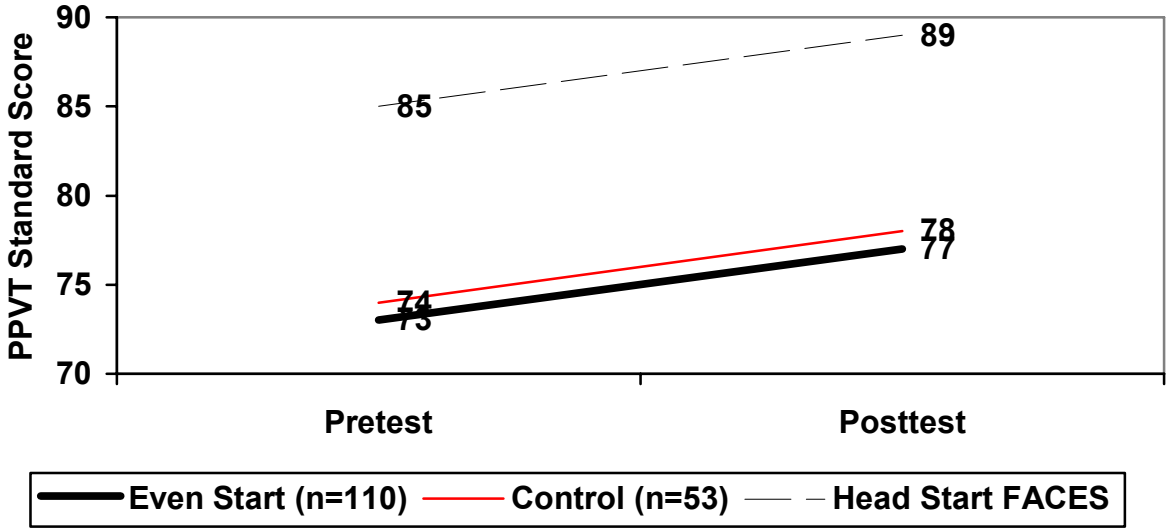


Figure reads: Even Start children in the EDS had an average score of 73 on the PPVT at pretest.

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APPENDIX A

DESCRIPTION OF OUTCOME MEASURES

APPENDIX A: DESCRIPTION OF OUTCOME MEASURES

CHILD OUTCOME MEASURES

Peabody Picture Vocabulary Test. The PPVT-III (Dunn & Dunn, 1997) measures listening comprehension for spoken words and is a good short test of general verbal ability. The word knowledge assessed by the PPVT is called "receptive vocabulary," to differentiate it from the more active vocabulary skills required to formally define a word or use it appropriately in a sentence. The PPVT was administered to all children in the EDS who were 2.5 years of age and older, unless the child's parent objected and insisted that the TVIP (Spanish version of the PPVT) be administered. The PPVT assesses children's knowledge of the meaning of words by asking them to say or indicate by pointing which of four pictures best shows the meaning of a word that is said aloud by the examiner. A series of words is presented, ranging from easy to difficult for children of a given age, each accompanied by a plate consisting of four line drawings. The test is suitable for ages from 2.5 years through adulthood and has recently established age norms based on a national sample of 2,725 children and adults tested at 240 sites across the nation.

The PPVT-III was extensively revised from earlier versions. Administration procedures were modified to permit easier testing and more accurate scoring. New drawings were added and dated illustrations dropped to achieve better gender and ethnic balance. Test items that showed statistical bias by race or ethnicity, gender, or region were deleted from the item pool prior to standardization. Research by critics of earlier versions of the PPVT shows no racial or economic bias (Washington & Craig, 1999).

Woodcock-Johnson Psycho-Educational Battery (Revised). The most recent edition of the WJ-R (Woodcock & Mather, 1989, 1990) at the time of the EDS data collection is a carefully constructed, newly-normed, individually-administered test battery that is designed to assess the intellectual and academic development of individuals from preschool through adulthood. Each of the 41 WJ-R subtests requires about 5 minutes to complete, is designed to be administered separately or in combination with other subtests, and has an internal consistency reliability of .90 or higher. In the EDS, four subtests of the WJ-R were administered to children who were older than 2.5 but less than 4.0 years of age. These include three subtests used in the Head Start FACES study: the Letter-Word Identification, Dictation and Applied Problems subtests which constitute the "Early Development – Skills" cluster, according to the test developers, and thus provide a quick screening of broad achievement. In addition, the Incomplete Words subtest was administered to provide information on phonemic awareness. Eight subtests were administered to children who were 4.0 years of age and older. These include the four subtests used for younger children, as well as four subtests which focus on reading skills (Sound Blending, Word Attack, Passage Comprehension, and Reading Vocabulary).

- *Letter-Word Identification:* The first five Letter-Word Identification items involve symbolic learning, or the ability to match a rebus (pictographic representation of a word) with an actual picture of the object. The remaining items measure reading identification skills in identifying isolated letters and words that appear in large type.
- *Dictation:* The first six items in this subtest measure prewriting skills such as drawing lines and copying letters. The remaining items measure the child's skill in providing written responses when asked to write specific capital or lower-case letters of the alphabet. Later parts of the subtest ask for writing of specific words and phrases, punctuation, and capitalization.
- *Applied Problems:* This subtest measures skill in analyzing and solving practical problems in mathematics. In order to solve the problems, the child must recognize the procedure to be followed and then perform relatively simple counting or addition or subtraction operations. Because many of the problems include extraneous stimuli or information, the child must also decide which data to include in the count or calculation.
- *Incomplete Words:* This is a tape-recorded test that measures auditory closure. After hearing a recorded word that has one or more phonemes missing, the subject identifies the complete word. This test primarily measures auditory processing.
- *Sound Blending:* This test measures the ability to integrate and then say whole words after hearing parts (syllables and/or phonemes) of the words. An audiotape is used to present word parts in their proper order. The test measures auditory processing.
- *Word Attack:* This measures the subject's skill in applying phonic and structural analysis skills to the pronunciation of unfamiliar printed words. The subject reads aloud letter combinations that are linguistically logical but that form nonsense words or low-frequency words in English (or Spanish).
- *Passage Comprehension:* The first four items in this subtest are presented in a multiple-choice format requiring the subject to point to the picture represented by a phrase. The remaining items measure skill in reading a short passage and identifying a missing key word. The task requires the child to state a word that would be appropriate in the context of the passage. The child exercises a variety of comprehension and vocabulary skills.
- *Reading Vocabulary:* This subtest measures skill in reading words that supply appropriate meanings. In Part A: Synonyms, the subject must state a word similar in meaning to the word presented. In Part B: Antonyms, the subject must state a word that is opposite in meaning to the word presented. Only one-word responses are acceptable.

Story & Print Concepts. The Story & Print Concepts task is an adaptation of earlier prereading assessment procedures developed by Teale (1986) and Mason (1992). Administered to children in the EDS who were 2.5 years of age and older, the child is handed a children's storybook upside down and backwards. The assessor notes whether the child turns it around to put the book upright with the front cover on top. Then the child is asked to identify where the name of the book is written and where the material to be read begins, and in what direction the reading proceeds. The assessor reads the story to the child and asks basic questions about both the content of the story and the mechanics of reading. Research has found that children who

experience frequent story reading by their parents or teachers are more likely to be able to answer such questions.

Vineland Adaptive Behavior Scales -- Communication Domain (Sparrow, Bella & Cicchetti, 1984). The Vineland is a comprehensive set of rating scales designed for use by teachers and parents. The Vineland has national norms. The Communication Domain from the Classroom Edition of the Vineland was used in the EDS. It takes about 10 minutes to administer and consists of 63 items that provide an assessment of literacy functioning in three areas -- expressive, receptive, and written skills. Because teachers need time to become familiar with the children in their classroom, the Vineland was completed only as a posttest measure at the end of the school year. Teachers completed the Vineland for all Even Start and control group children who were 3.0 years of age and older and in a formal preschool or school-based setting.

Parent Report of Child Literacy. The ESPIRS and the EDS parent interview contain items designed to obtain parent ratings of their child's literacy performance. Available in English and Spanish, these items are based on literacy competencies identified in recent research on reading by the National Research Council (Snow, Burns & Griffin, 1998), the NAEYC (1998), and the NICHD (Lyon, 1999). The items were used to construct the following variables for Even Start and control children:

- *Child knows alphabet (age 2 years, 7 months and older):* Has value of 1 if parent reports that child knows all alphabet letters or can say/sing the entire alphabet; has value of 0 otherwise.
- *Child counts to 100 or more (age 2 years, 7 months and older):* Has value of 1 if parent reports that child can count to 100 or more; has value of 0 otherwise.
- *Child knows colors (age 2 years, 7 months and older):* Has value of 1 if parent reports that child knows colors red, yellow, blue, green by name; has value of 0 otherwise.
- *Extent to which child reads (age less than 2 years, 6 months):* Has values from 0-4. Value increases by 1 if child pretends to read, has memorized book, pretends to read to someone else, has favorite book.
- *Extent to which child reads (age 2 years, 7 months and older):* Has values from 0-9. Value increases by 1 if child pretends to read, reads for enjoyment, has memorized book, has favorite book, can follow written directions, can describe something learned through reading, rereads sentences, reads/pretends to read to someone else, recognizes own first name in writing/print.
- *Age-appropriate writing skills (all children):* Has values from 0-2. Value increases by 1 if child pretends to write, writes some letters of the alphabet.
- *Child knowledge of print concepts (age 2 years, 7 months – 4 years, 11 months):* Has values from 0-9. Value increases by 1 if child shows front of book, page where you start, where to start on page, a picture, a word, last letter in a word, a number, a period, a question mark.

Social Skills Rating System (SSRS). The SSRS (Gresham & Elliot, 1990), available in English, is designed for teachers to use in rating child competencies and behaviors. Because

teachers should not complete these scales until they have spent a substantial amount of time with a child, we used the SSRS scales only as a posttest. As with the Vineland scales, we collected the SSRS for all Even Start and control group children who were 3.0 years of age and older and in a formal preschool or school-based setting. The SSRS has been widely used and nationally normed. Standard scores and percentile ranks are available for each scale.

- *Problem behaviors:* This scale consists of 18 items (10 for the preschool version) that ask the teacher to rate the child on a three-point scale (never, sometimes, very often). The items measure internalizing behaviors (acting sad or lonely), externalizing behaviors (acting out) and hyperactivity (not in the preschool version).
- *Social skills:* This scale consists of 30 items that ask the teacher to rate the child on a three-point scale (never, sometimes, very often). The items measure cooperation, assertion and self-control.

School Records. For Even Start and control group children, we asked schools for access to student records in order to obtain information on attendance, absences, tardiness, and placement in special education. This information was collected at posttest and follow-up.

PARENT AND FAMILY OUTCOME MEASURES

The EDS measured parent outcomes through direct assessment of literacy and parent self-report.

Woodcock-Johnson Psycho-Educational Battery -- Revised. The WJ-R (Woodcock & Mather, 1989,1990) was described earlier under measures for children. The WJ-R is appropriate for assessing the academic development of individuals into adulthood. In the EDS parent assessment, we used four subtests that measure reading achievement: Letter-Word Identification, Word Attack, Passage Comprehension, and Reading Vocabulary. Each of these subtests was described earlier.

Parent Report of Literacy at Home. The ESPIRS records parent report of literacy skills including reading and writing done at home. We included these items in the parent interview that was administered to parents of all children in the EDS (both in Even Start and in the control group). The following variables were constructed:

- *Variety of parent reading at home:* Has values from 0-12. Value increases by 1 if parent reads letters/bills, advertisements, street signs, books, newspapers, food labels, coupons, notes from teacher/school, magazines, TV Guide, instructions, religious materials.
- *Variety of parent writing at home:* Has values from 0-11. Value increases by 1 if parent writes appointments on calendar, grocery lists, notes/memos, forms/applications, letters, checks/money orders, greeting cards, crosswords, journal/diary, recipes, stories/poems.

Parent Report of Parent-Child Reading. Four variables were constructed to assess various aspects of parent-child reading including whether the parent reads to the child daily, the

amount of reading that the parent does with the child, the variety of reading that is done with the child, and the quality of the reading that is done with the child:

- *Reads to child daily (all children):* Has value 1 if parent reads to the child each day; has value of 0 otherwise.
- *Amount of reading to/with child (all children):* Has values from 0-3. Value increases by 1 if parent reads to child every day, someone else reads to child every day, parent tells story to child every day.
- *Variety of reading to/with child (all children):* Has values from 0-5. Value increases by 1 if parent reads the following to/with child: newspapers, magazines, store catalogs, funnies or comic books, TV listings.
- *Quality of reading to/with child (all children):* Has values from 0-5. Value increases by 1 if, when reading to child, parent stops/asks what is in a picture, stops/points out letters, stops/asks what happens next, reads same story over and over, asks child to read.

Parent Report of Literacy Resources at Home. Three variables were constructed to assess the literacy resources available at home: the number of books that the child has, the variety of non-print resources in the home, and the variety of print resources in the home.

- *Number of books that child has (all children):* Has values from 0-5. 0 = no books, 1 = 1 or 2 books, 2 = 3 to 10 books, 3 = 11 to 25 books, 4 = 26 to 50 books, 5 = 51+ books.
- *Variety of non-print resources at home (all children):* Has values from 0-16. Value increases by 1 if the following are available at home: rattle/squeak toys, pull toys, crayons and paper, scissors, blocks, scotch tape, tinkertoys, puzzles/paint/magic markers, picture catalogs, yarn/thread/cloth, clay/playdough, make-believe toys, plants in pot or garden, pens/pencils, typewriter/computer.
- *Variety of print resources at home (all children):* Has values from 0-5. Value increases by 1 if the following are available at home: books, magazines, newspapers, TV Guide, comic books.

Parent Report of Support of Child's School. Two variables were constructed to assess the parent's support of school: the extent to which parents participate in school activities and parent opinion about school.

- *Parent participation in school activities (age 2 years, 7 months and older):* Has values from 0-12. Value increases by 1 if parent has conference with a teacher, observes classroom activities, attends school event, attends after-school program, meets with PTA, attends parent advisory committee meeting, helps with fundraising activities, volunteers in school office or library, volunteers in child's classroom, volunteers for school trips, works as paid employee, serves on preschool committee.
- *Parent opinion about school (age 5 years, 0 months and older):* Has values from 0-14. Value increases by 1 if parent agrees with the following: school places priority on learning, school assigns worthwhile homework, child is challenged at school, child is treated fairly at school, school standards are realistic, child is respected by teacher, parent

is respected by teacher, parent would select this school, child gets needed help at school, school is a safe place, it is important for parents to participate in school, parents have a say in school policy, parents support school policy, school maintains discipline.

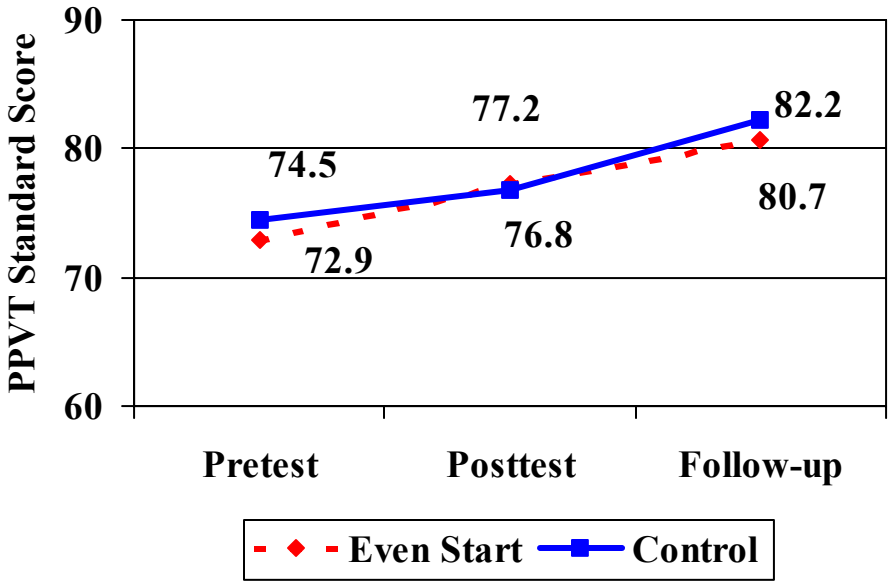
Parent Report of Economic Self-Sufficiency. The parent interview includes parent self-report of years of parent education and annual household income.

- *Parent education:* Number of years of education.
- *Parent GED attainment:* Does parent have a GED or high school diploma? Has value 1 if parent has GED or high school diploma, has value of 0 otherwise.
- *Parent employment:* Was parent employed? Has value 1 if parent was employed, has value of 0 otherwise.
- *Annual household income:* Has values from 1-8. 1 = under $3,000, 2 = $3,000 – $5,999, 3 = %6,000 - $8,999, 4 = $9,000 - $11,999, 5 = $12,000 - $14,999, 6 = $15,000 - $19,999, 7 = $20,000 - $25,000, 8 = more than $25,000.

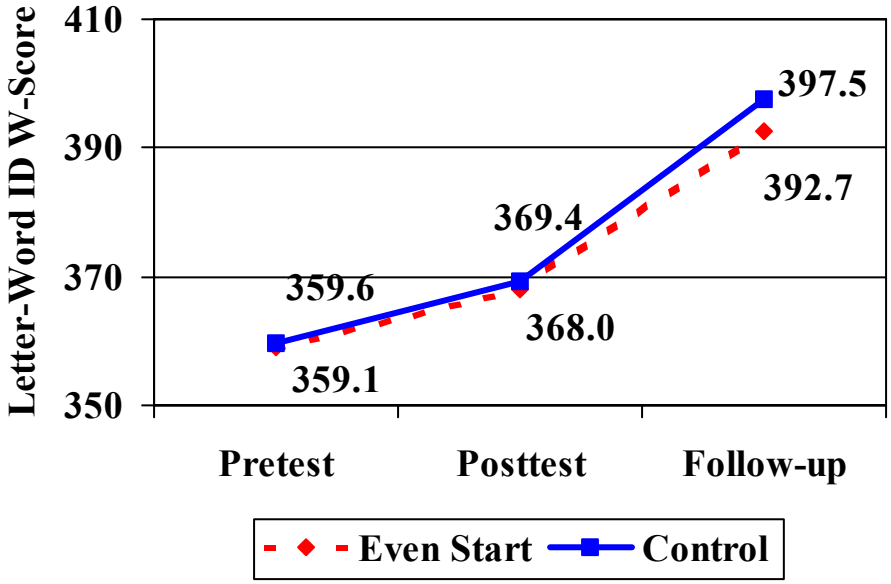
APPENDIX B

GRAPHICAL DISPLAYS OF PRETEST, POSTTEST, AND FOLLOW-UP DATA

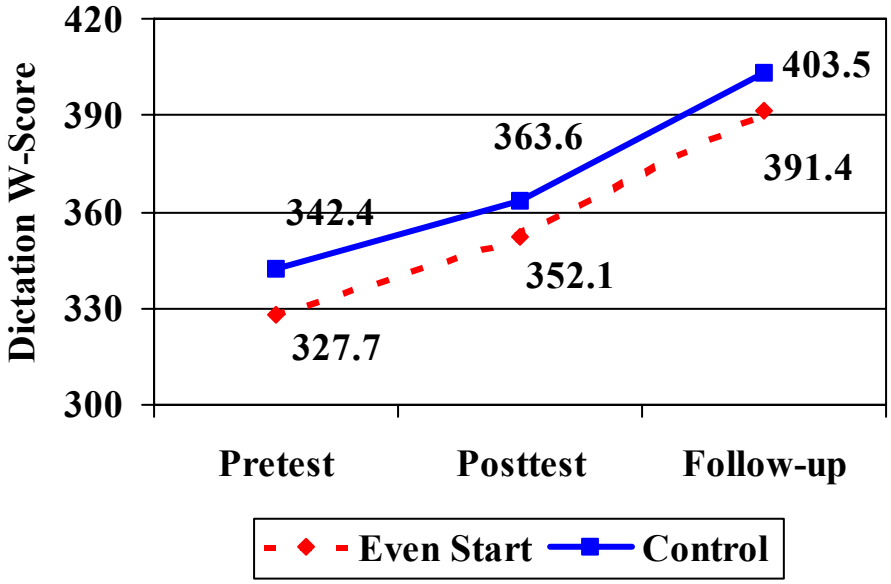
Child PPVT



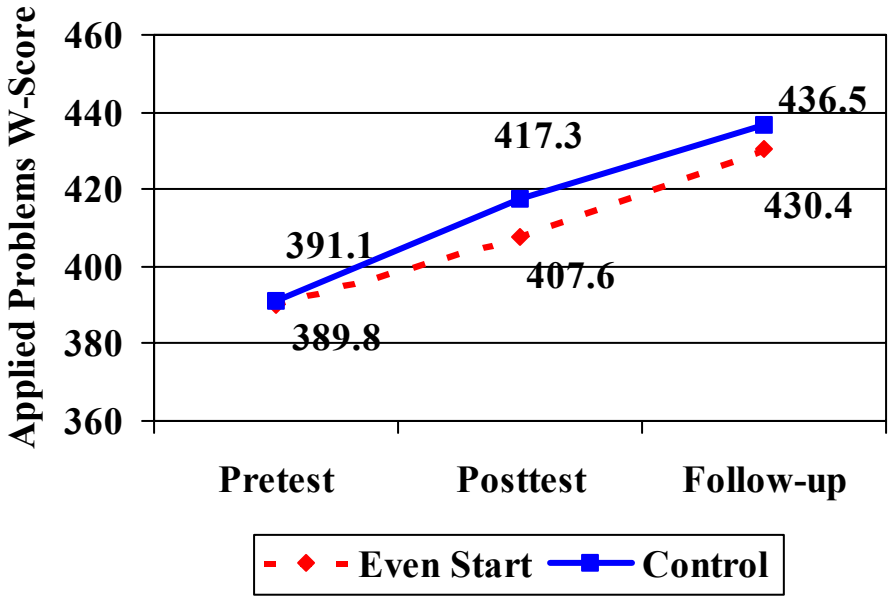
Child WJ-R: Letter-Word Identification



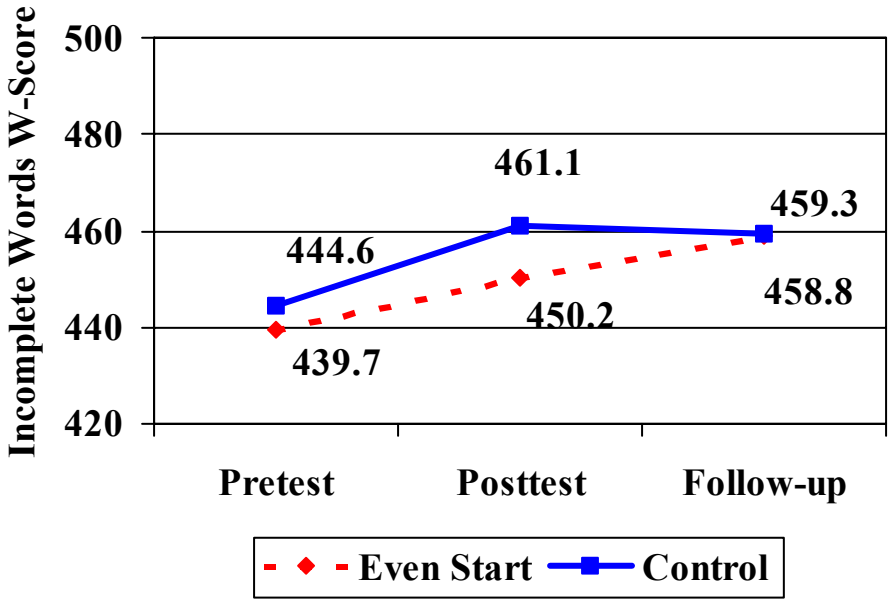
Child WJ-R: Dictation



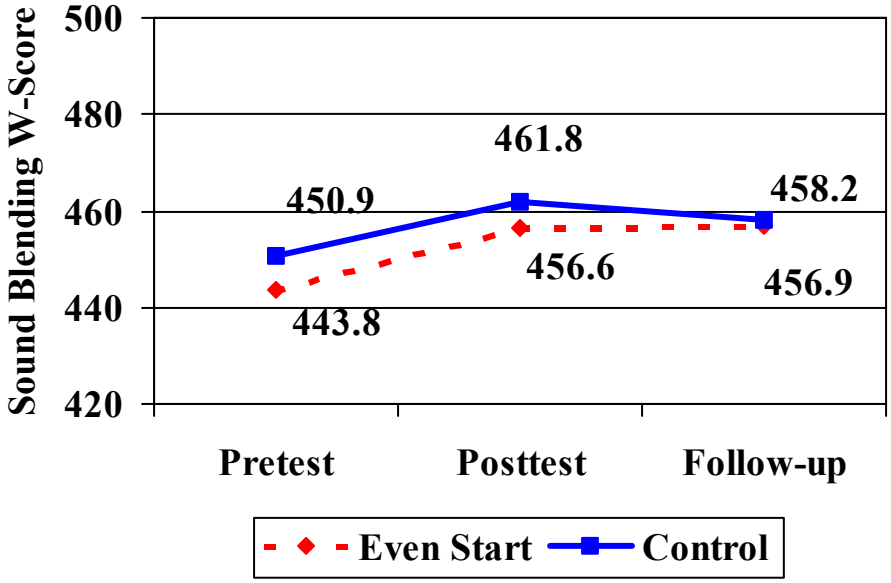
Child WJ-R: Applied Problems



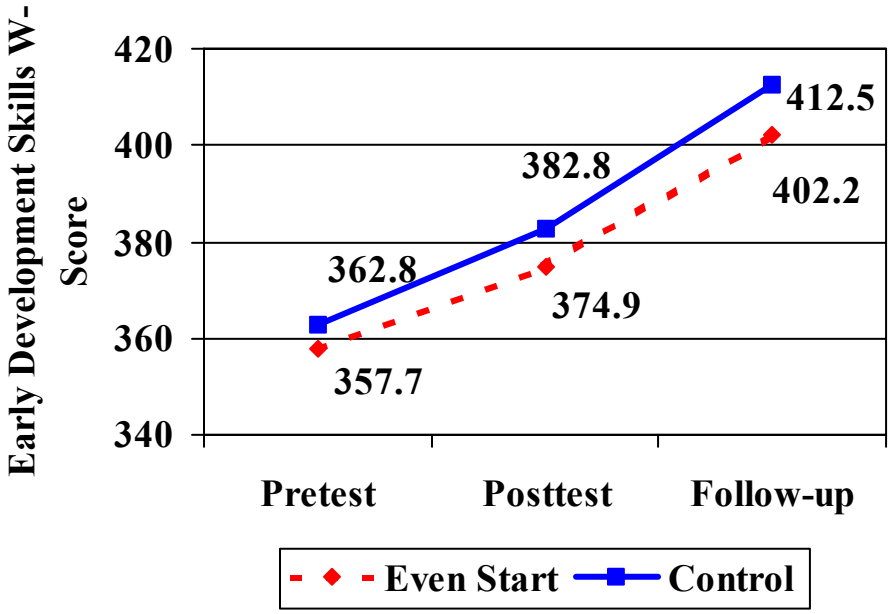
Child WJ-R: Incomplete Words



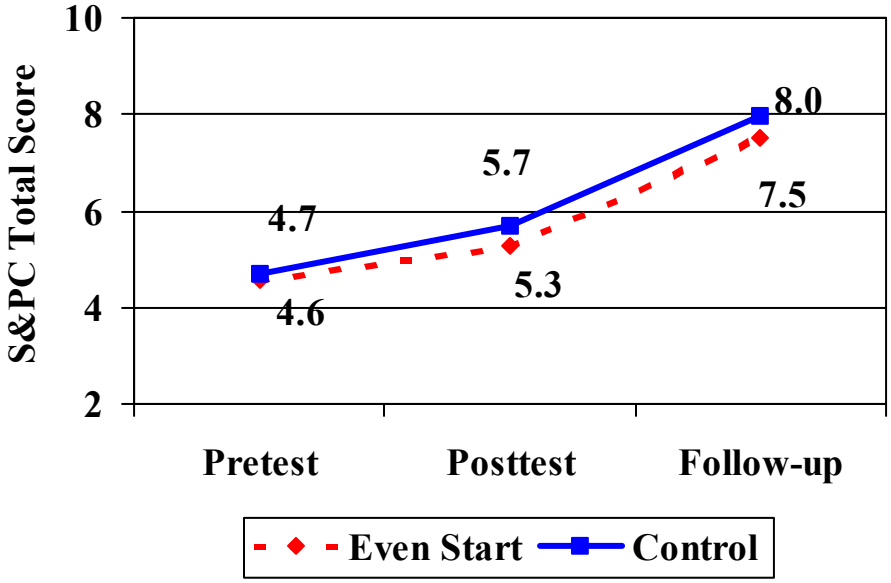
Child WJ-R: Sound Blending

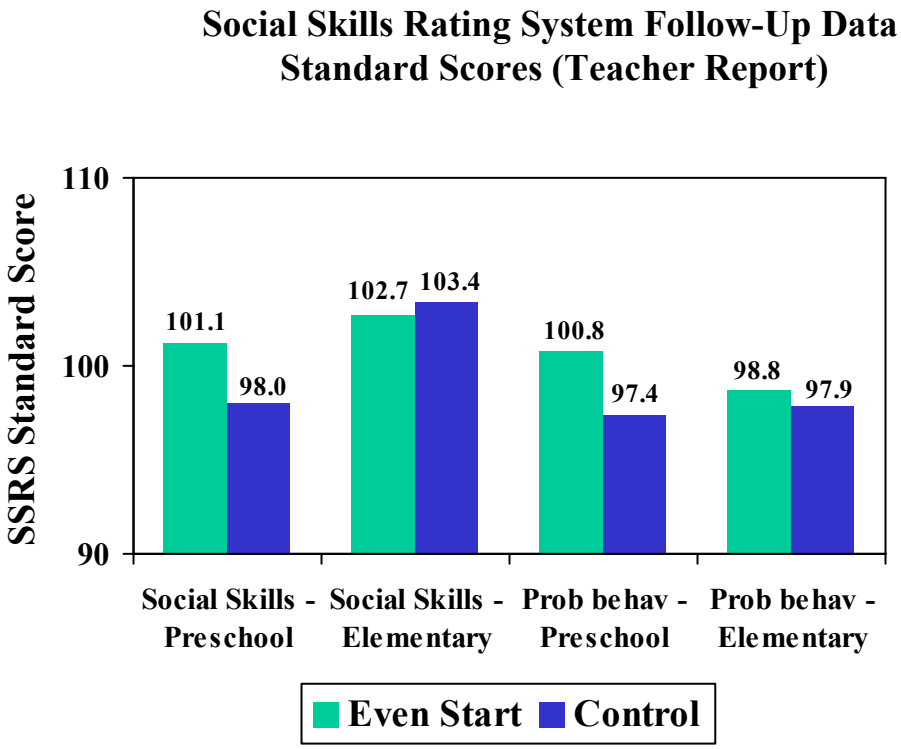


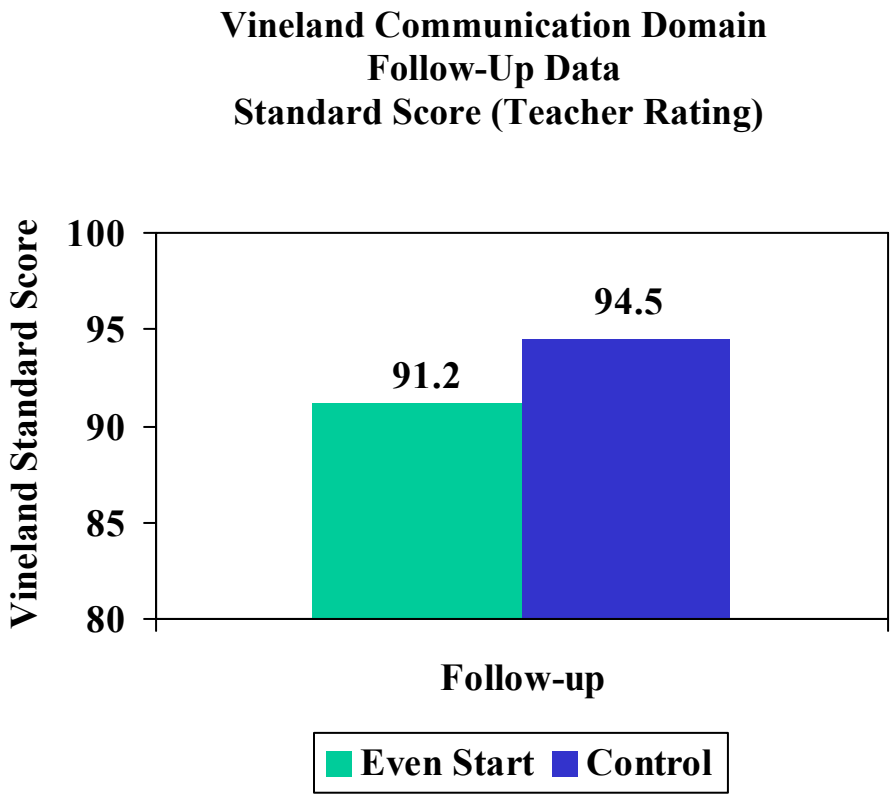
Child WJ-R: Early Development Skills Cluster

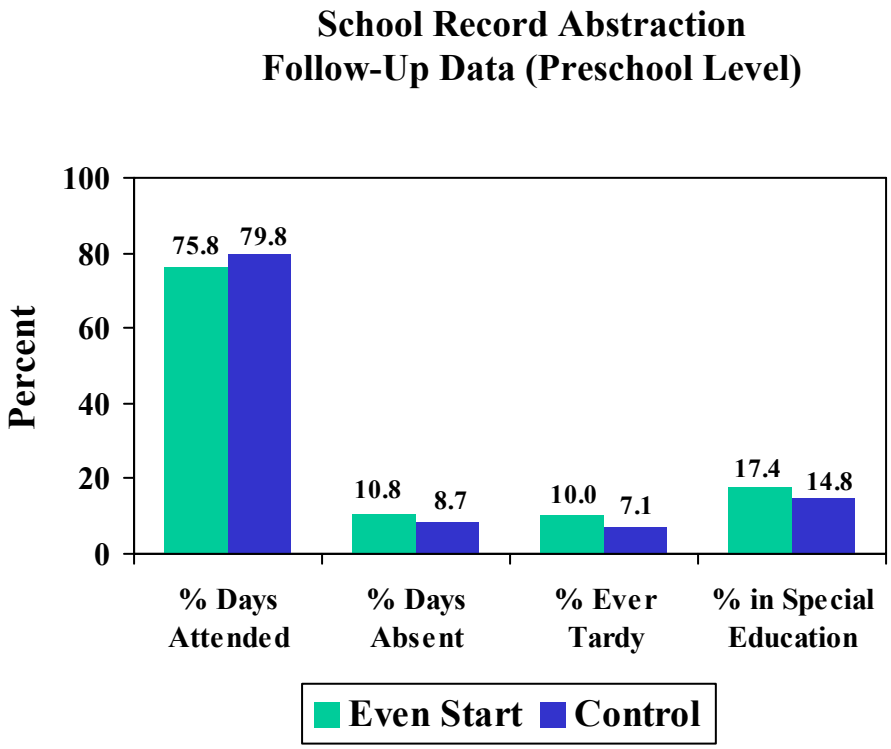


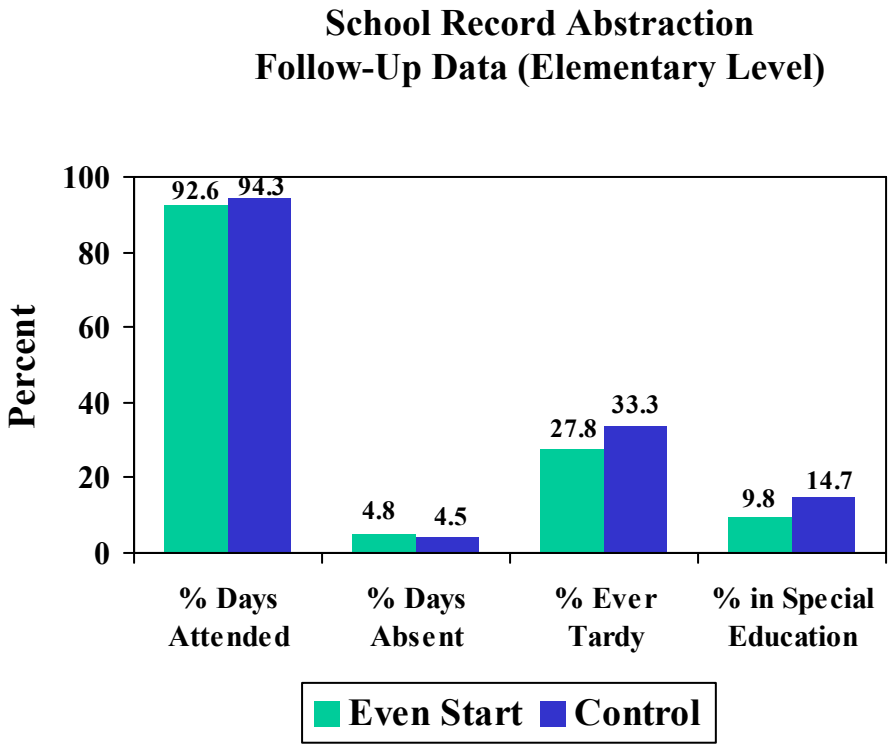
Story & Print Concepts

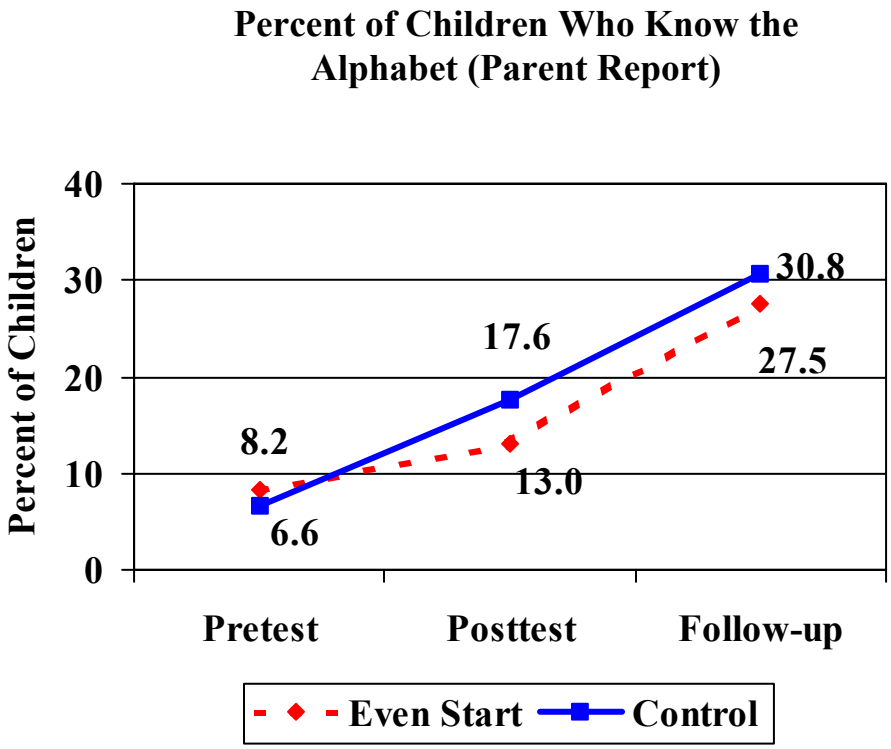


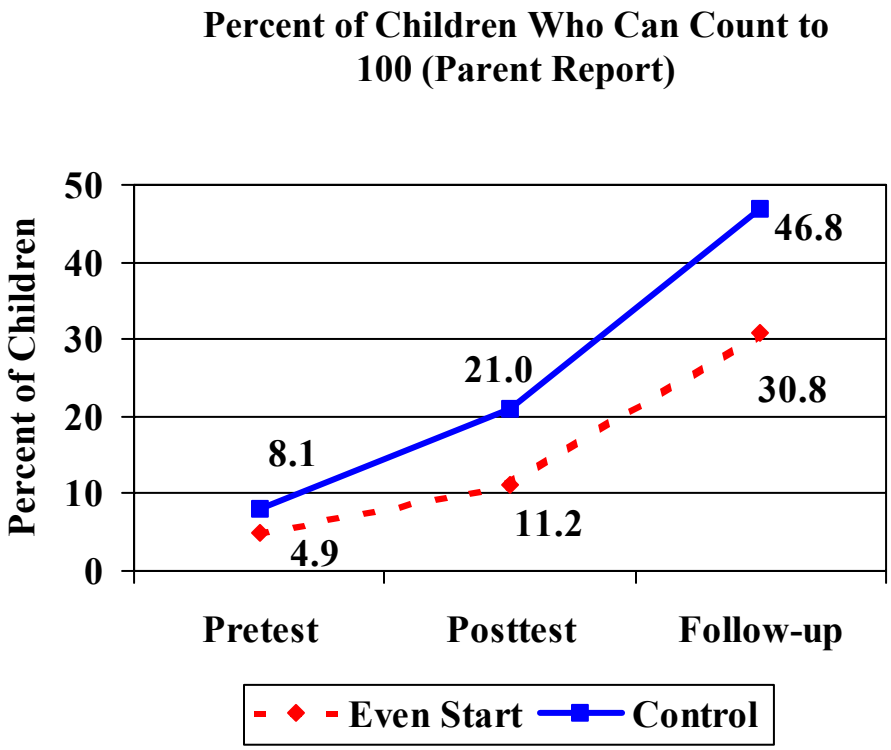

Social Skills Rating System Follow-Up Data
Standard Scores (Teacher Report)
SSRS Standard Score
110
100
90
101.1
98.0
102.7
103.4
100.8
97.4
98.8
97.9
Social Skills - Preschool
Social Skills - Elementary
Prob behav - Preschool
Prob behav - Elementary
Even Start
Control


Vineland Communication Domain
Follow-Up Data
Standard Score (Teacher Rating)
Vineland Standard Score
100
95
90
85
80
91.2
94.5
Follow-up
Even Start
Control

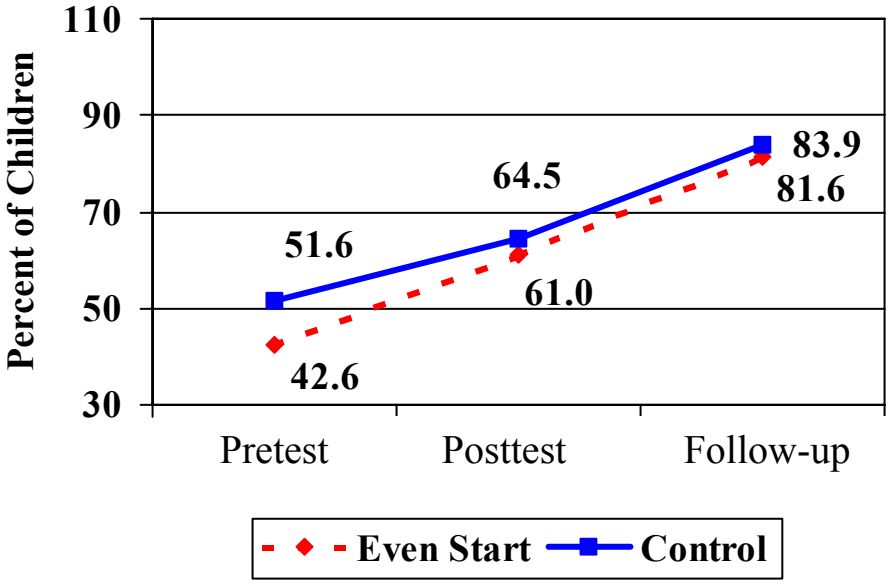

School Record Abstraction
Follow-Up Data (Preschool Level)
Percent
100
80
60
40
20
0
75.8
79.8
10.8
8.7
10.0
7.1
17.4
14.8
% Days Attended
% Days Absent
% Ever Tardy
% in Special Education
Even Start
Control


School Record Abstraction
Follow-Up Data (Elementary Level)
Percent
100
80
60
40
20
0
92.6
94.3
4.8
4.5
27.8
33.3
9.8
14.7
% Days Attended
% Days Absent
% Ever Tardy
% in Special Education
Even Start
Control

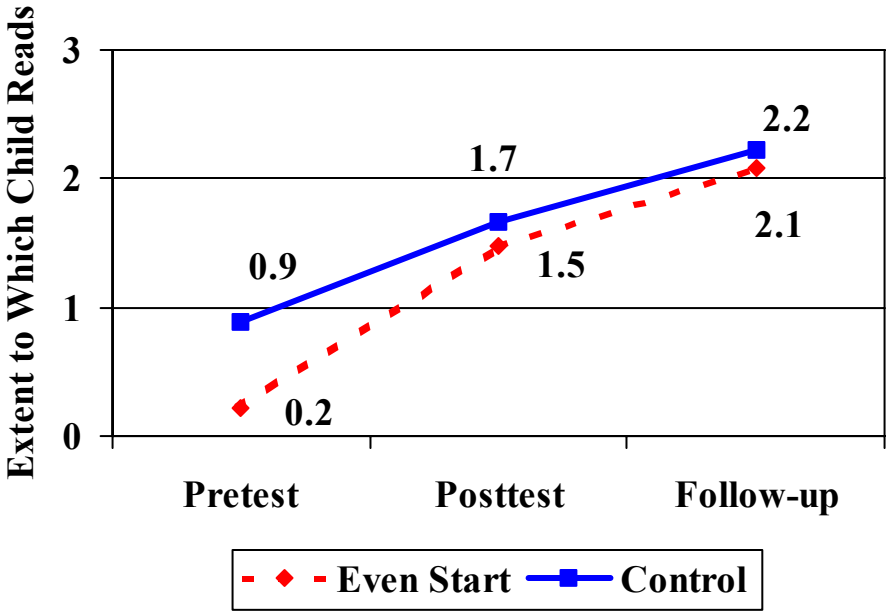

Percent of Children Who Know the Alphabet (Parent Report)
Percent of Children
40
30
20
10
0
30.8
17.6
27.5
8.2
13.0
6.6
Pretest
Posttest
Follow-up
Even Start
Control

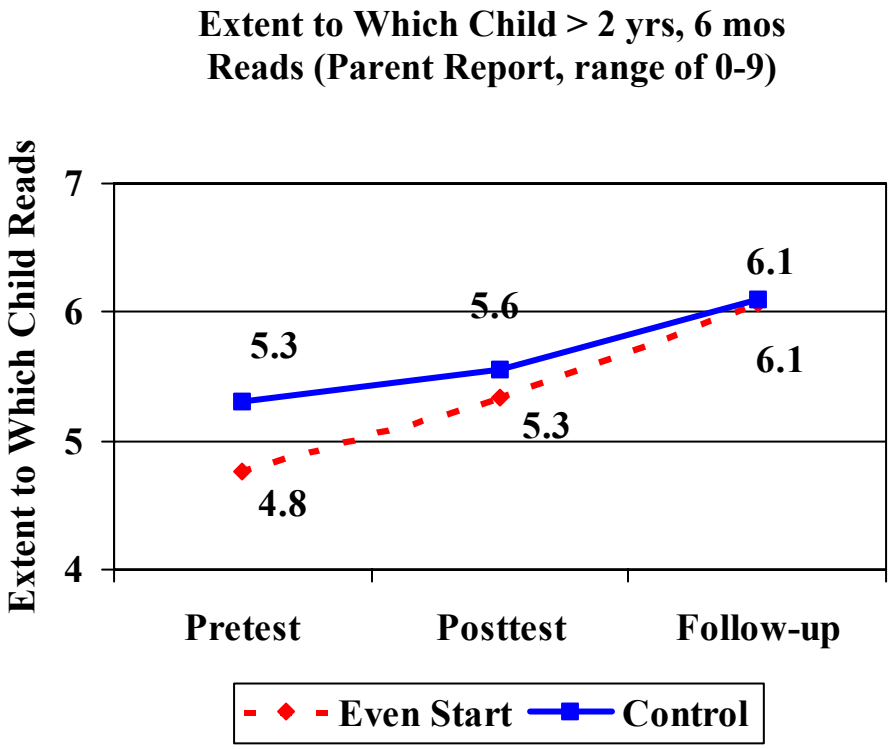

Percent of Children Who Can Count to 100 (Parent Report)
Percent of Children
50
40
30
20
10
0
46.8
21.0
30.8
8.1
11.2
4.9
Pretest
Posttest
Follow-up
Even Start
Control

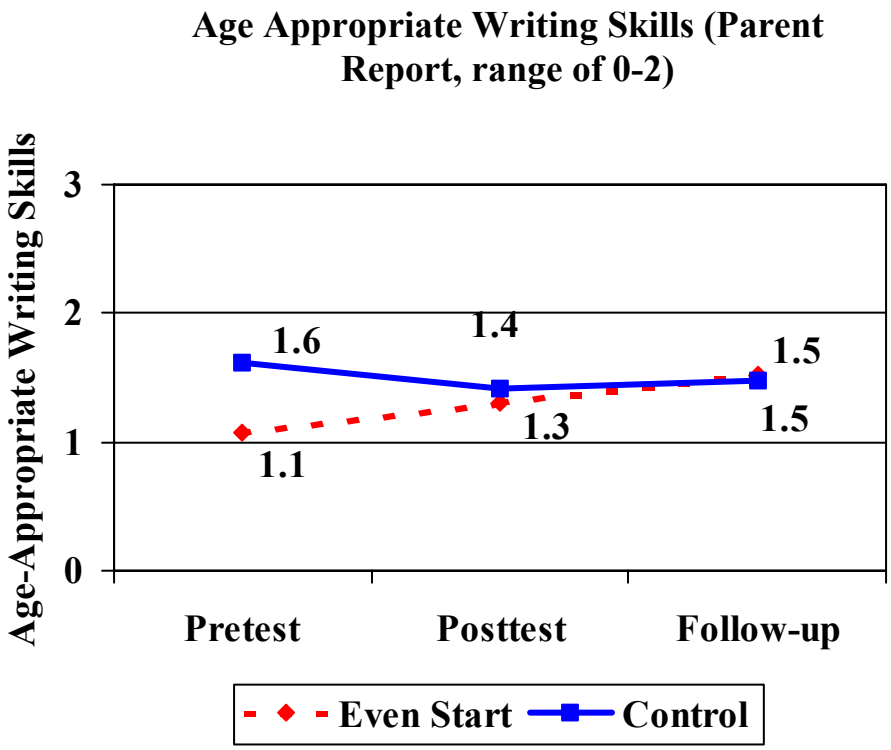
Percent of Children Who Know Colors Red, Yellow, Blue, Green (Parent Report)

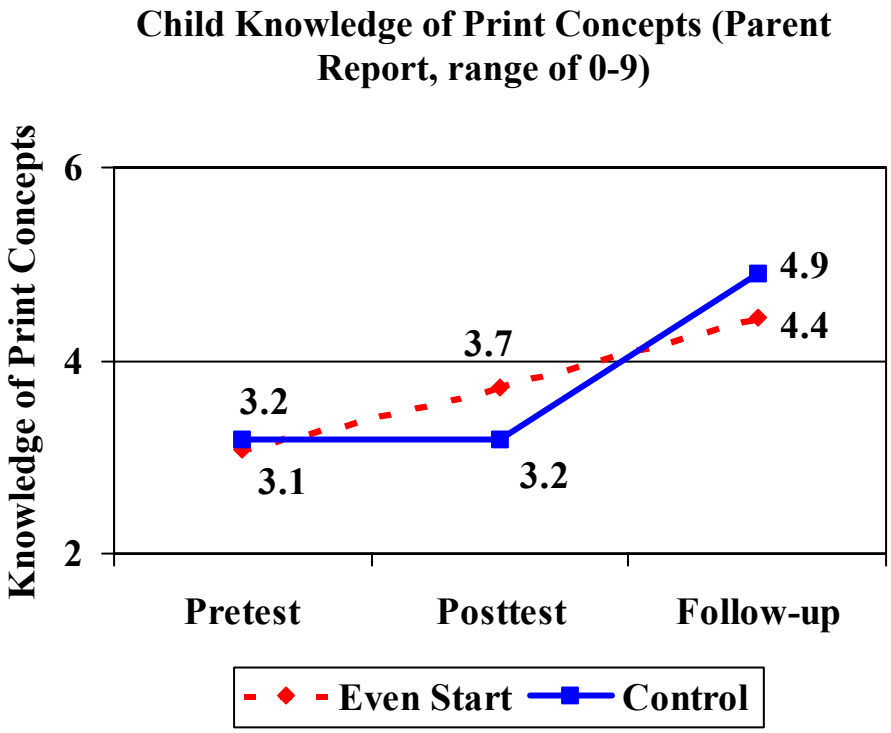


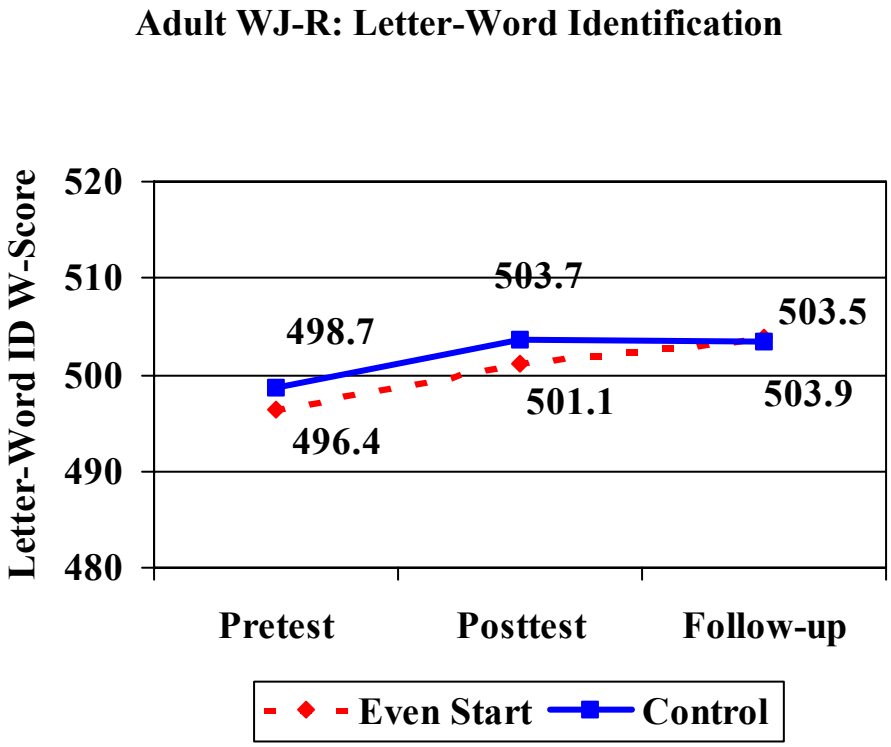
Extent to Which Child < 2 yrs, 6 mos Reads (Parent Report, range of 0-4)

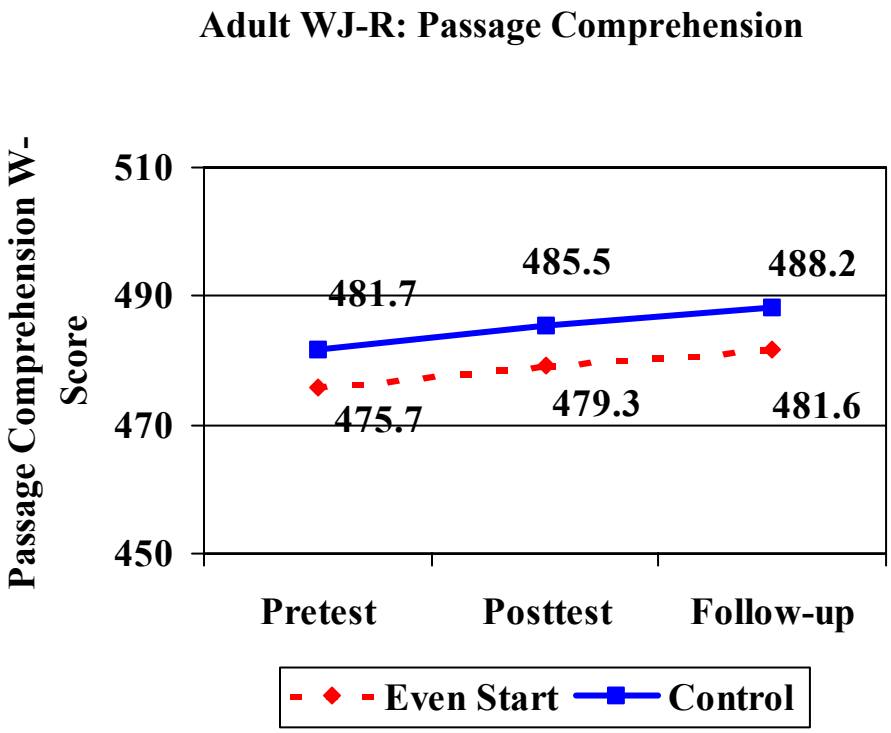


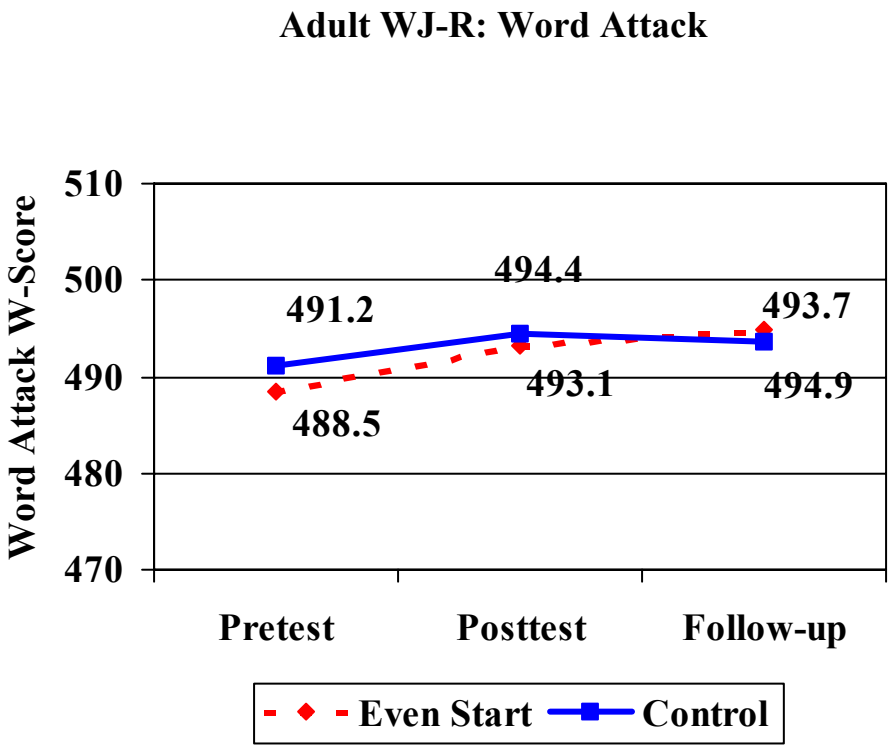

Extent to Which Child > 2 yrs, 6 mos Reads (Parent Report, range of 0-9)
Extent to Which Child Reads
7
6
5
4
5.3
5.6
6.1
6.1
5.3
4.8
Pretest
Posttest
Follow-up
Even Start
Control

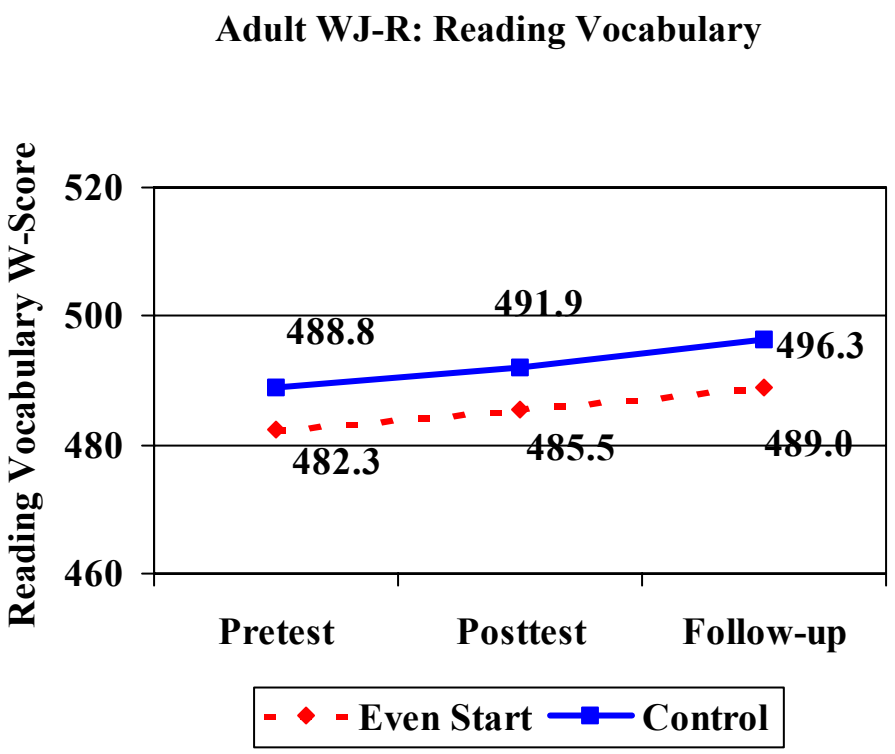

Age Appropriate Writing Skills (Parent Report, range of 0-2)
Age-Appropriate Writing Skills
3
2
1
0
1.6
1.4
1.5
1.3
1.5
1.1
Pretest
Posttest
Follow-up
Even Start
Control

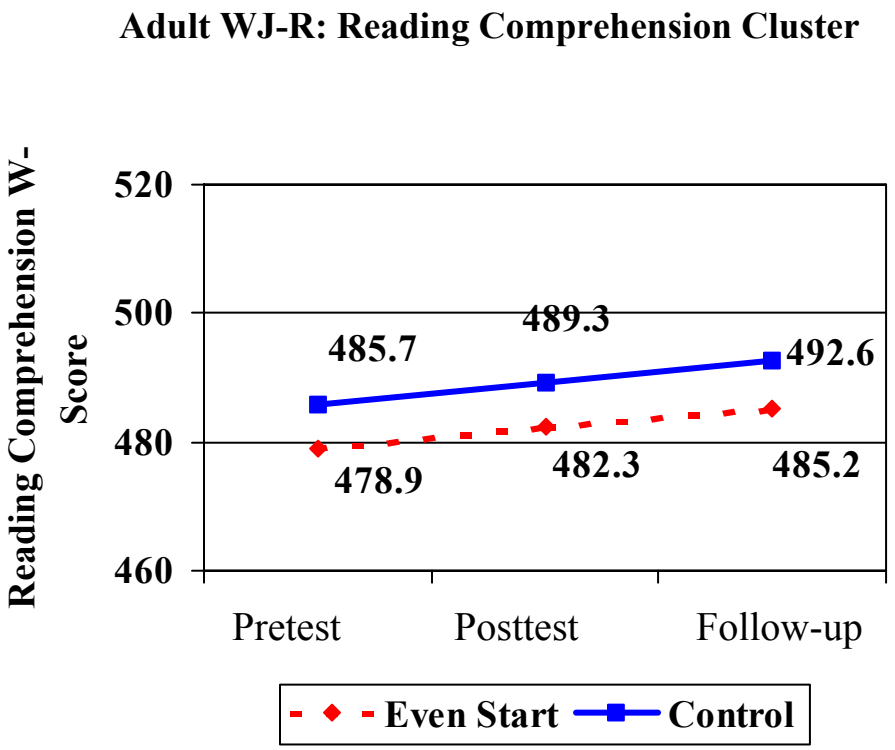

Child Knowledge of Print Concepts (Parent Report, range of 0-9)
Knowledge of Print Concepts
6
4
2
3.2
3.1
3.7
3.2
4.9
4.4
Pretest
Posttest
Follow-up
Even Start
Control


Adult WJ-R: Letter-Word Identification
Letter-Word ID W-Score
520
510
500
490
480
498.7
496.4
503.7
501.1
503.5
503.9
Pretest
Posttest
Follow-up
Even Start
Control

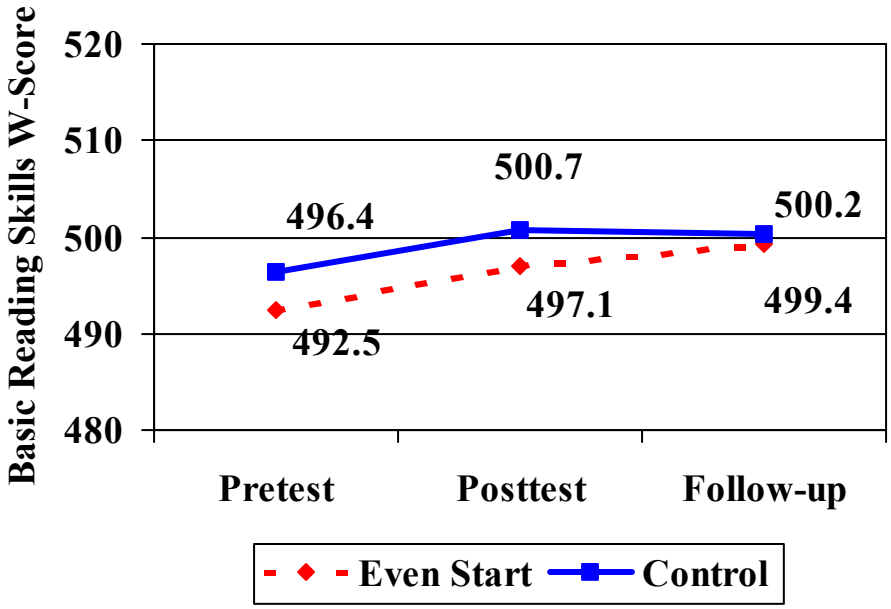

Adult WJ-R: Passage Comprehension
Passage Comprehension W-Score
510
490
470
450
481.7
485.5
488.2
475.7
479.3
481.6
Pretest
Posttest
Follow-up
Even Start
Control


Adult WJ-R: Word Attack
Word Attack W-Score
510
500
490
480
470
491.2
494.4
493.7
488.5
493.1
494.9
Pretest
Posttest
Follow-up
Even Start
Control

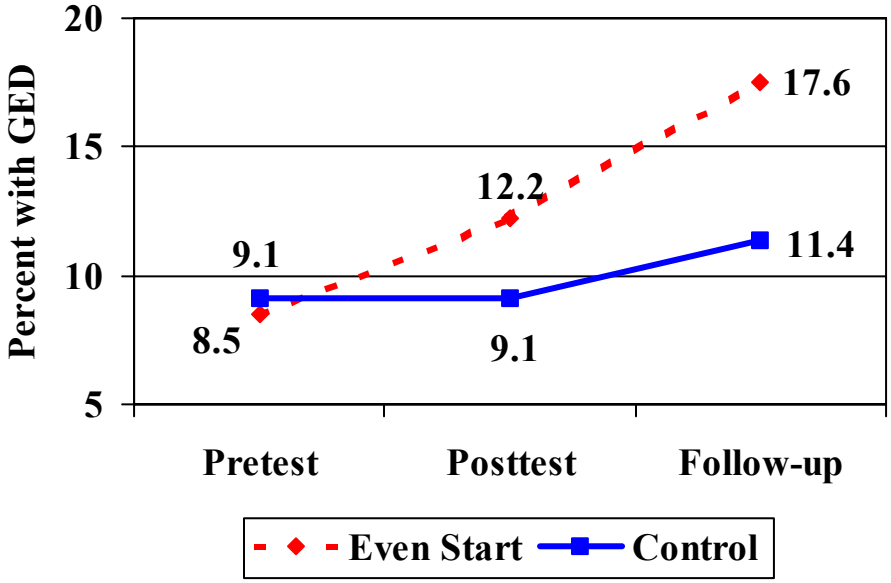

Adult WJ-R: Reading Vocabulary
Reading Vocabulary W-Score
520
500
480
460
488.8
491.9
496.3
482.3
485.5
489.0
Pretest
Posttest
Follow-up
Even Start
Control


Adult WJ-R: Reading Comprehension Cluster
Reading Comprehension W-Score
520
500
480
460
485.7
489.3
492.6
478.9
482.3
485.2
Pretest
Posttest
Follow-up
Even Start
Control

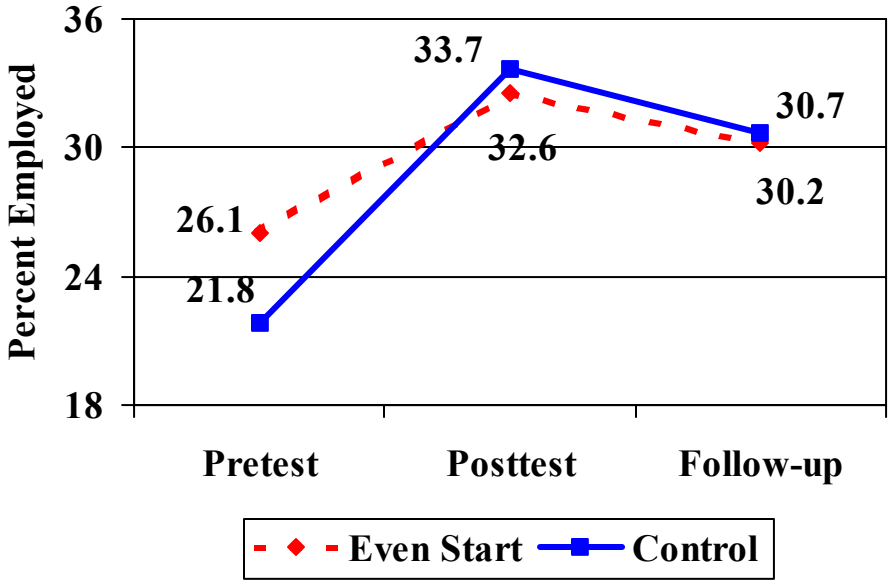
Adult WJ-R: Basic Reading Skills Cluster



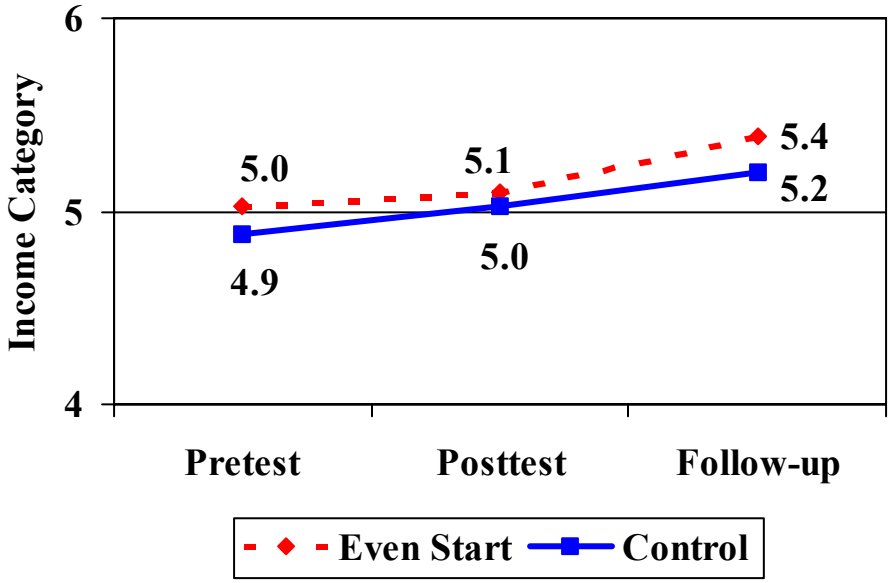
Parent GED Attainment



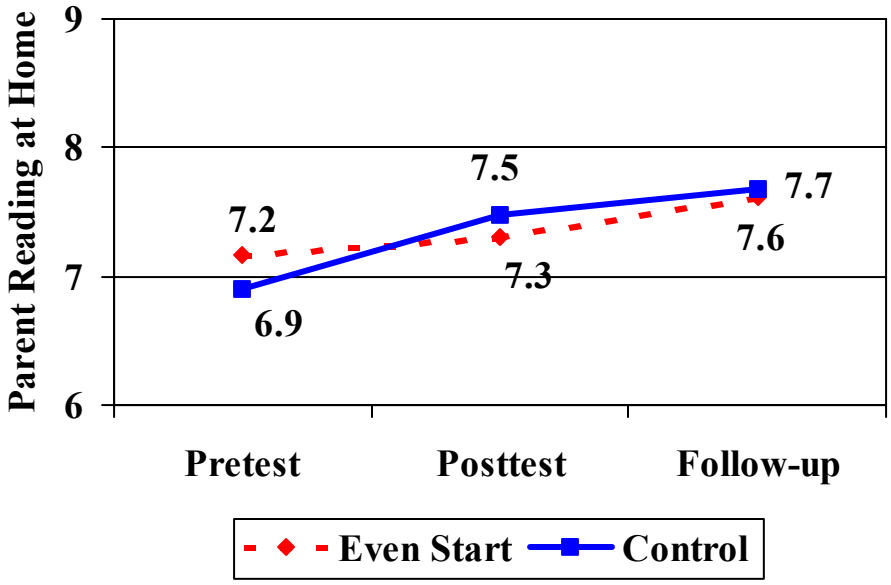
Parent Employment



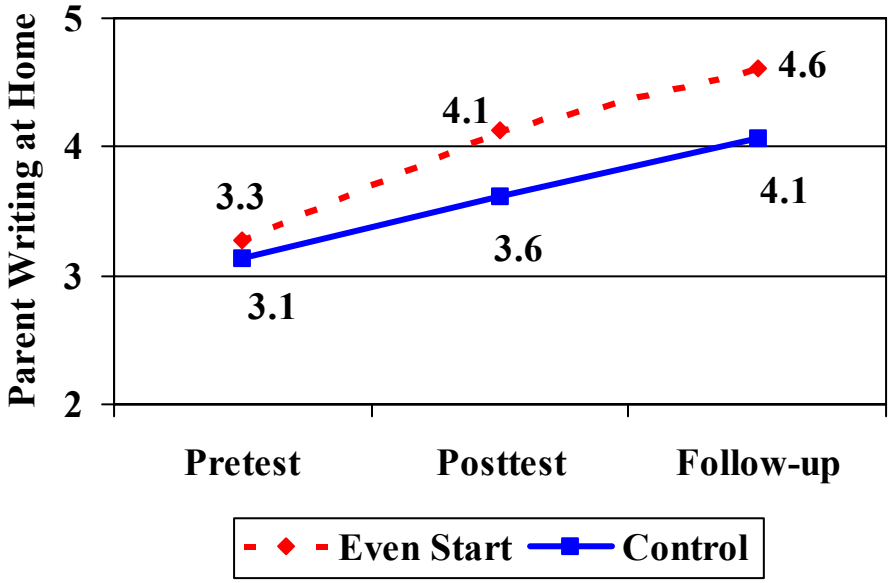
Annual Household Income

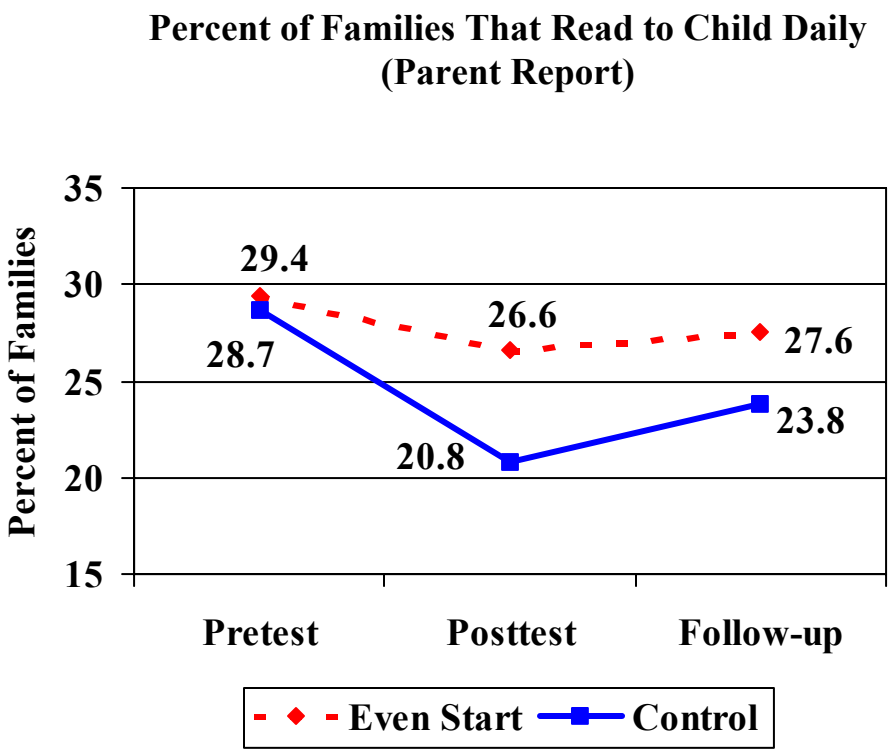


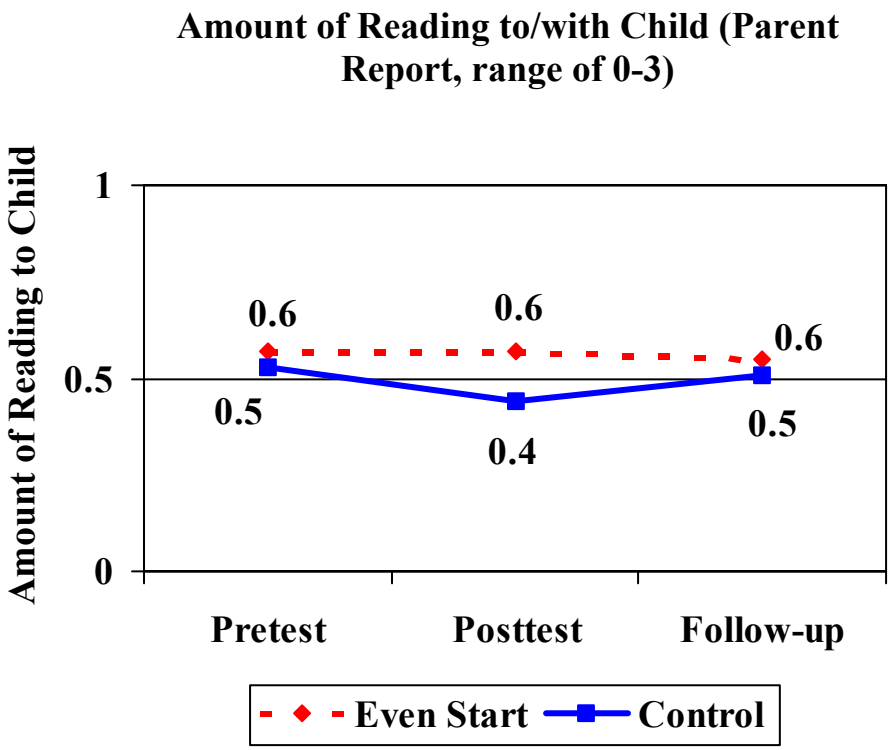
Variety of Parent Reading at Home
(Parent Report, range of 0-12)



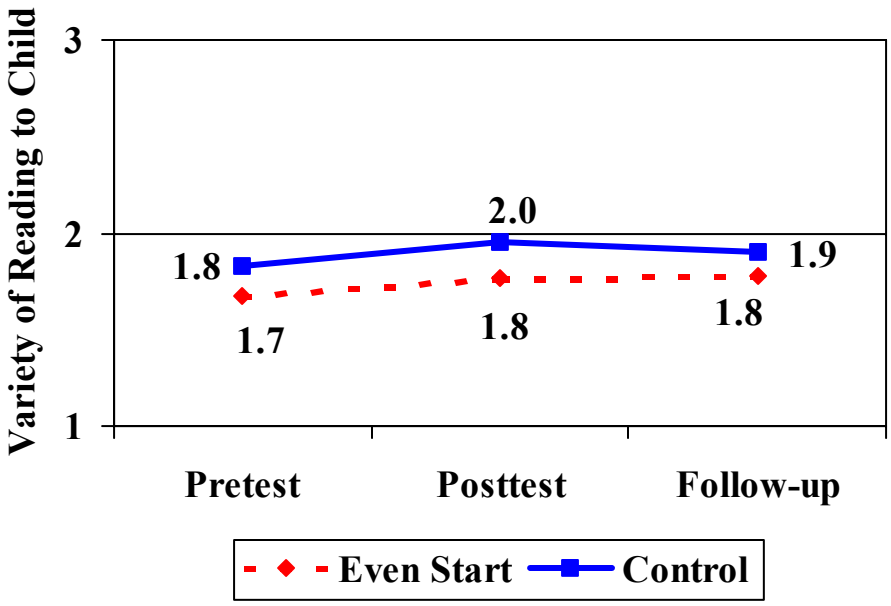
Variety of Parent Writing at Home
(Parent Report, range of 0-11)



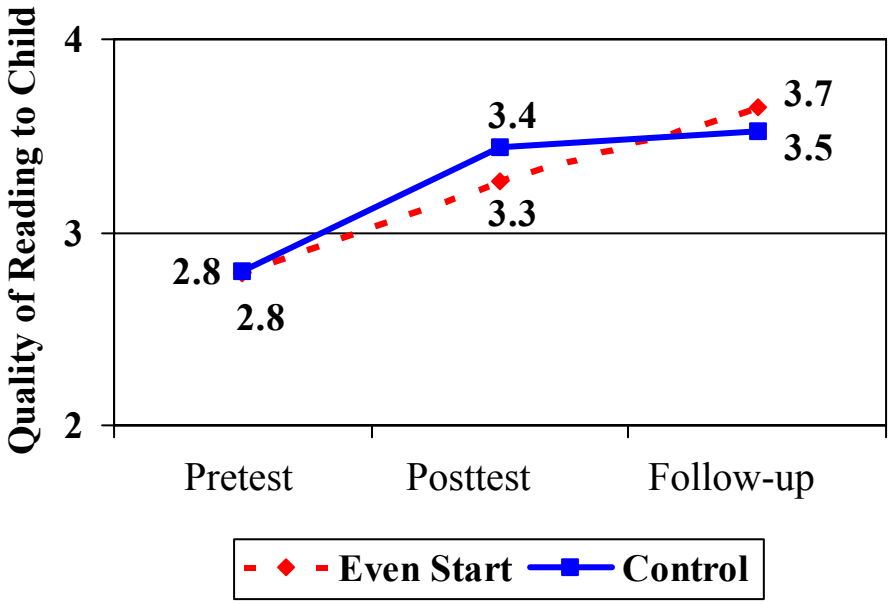

Percent of Families That Read to Child Daily
(Parent Report)
Percent of Families
35
30
25
20
15
29.4
26.6
27.6
28.7
20.8
23.8
Pretest
Posttest
Follow-up
Even Start
Control


Amount of Reading to/with Child (Parent
Report, range of 0-3)
Amount of Reading to Child
1
0.5
0
0.6
0.6
0.6
0.5
0.4
0.5
Pretest
Posttest
Follow-up
Even Start
Control

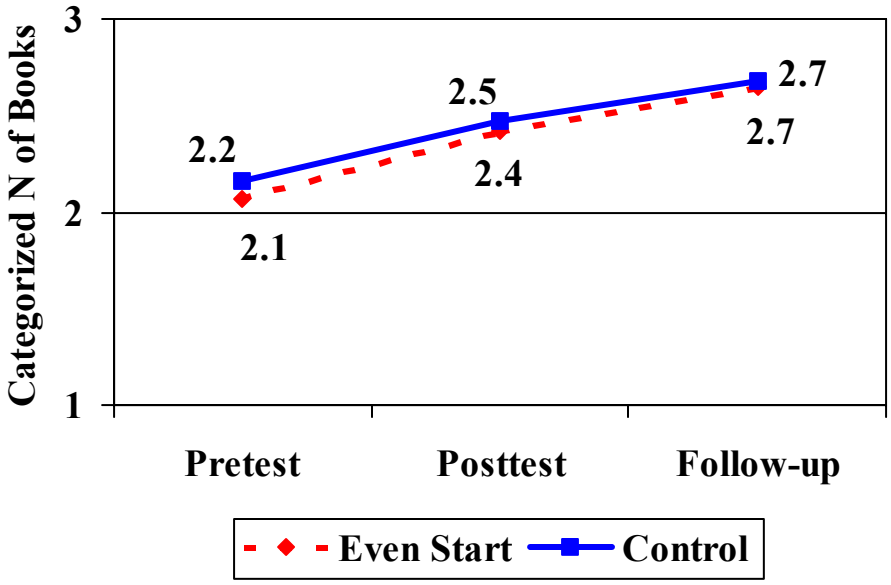
Variety of Reading to/with Child (Parent Report, range of 0-5)



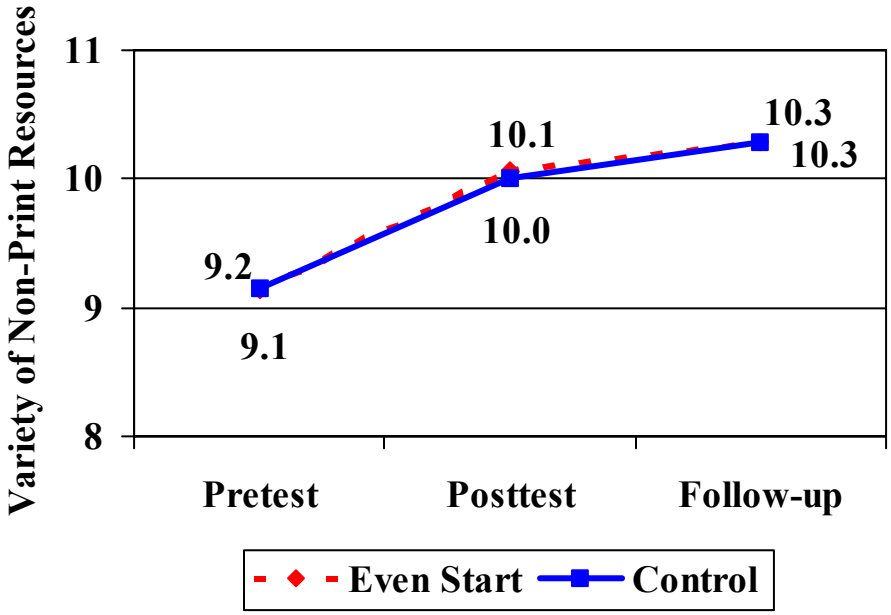
Quality of Reading to/with Child (Parent Report, range of 0-5)

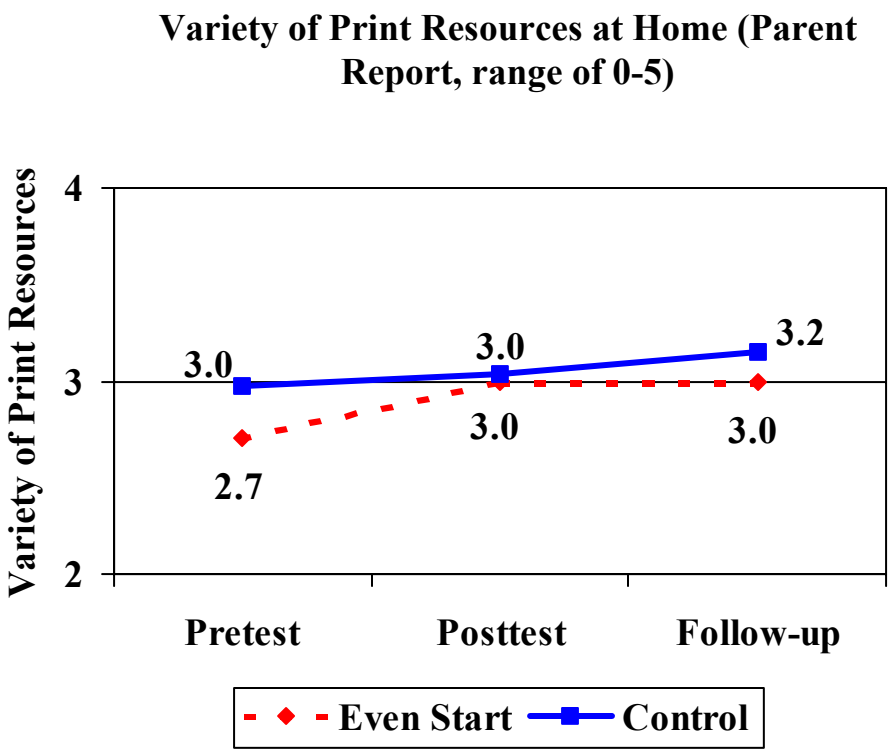


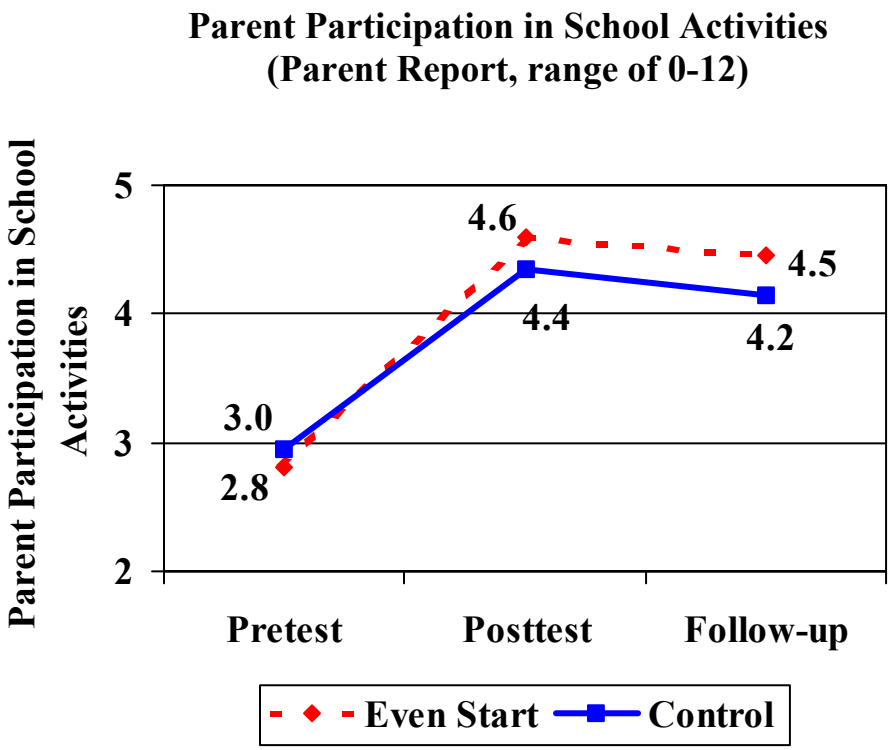
Number of Books Child Has (Categorized)
(Parent Report, range of 0-5)

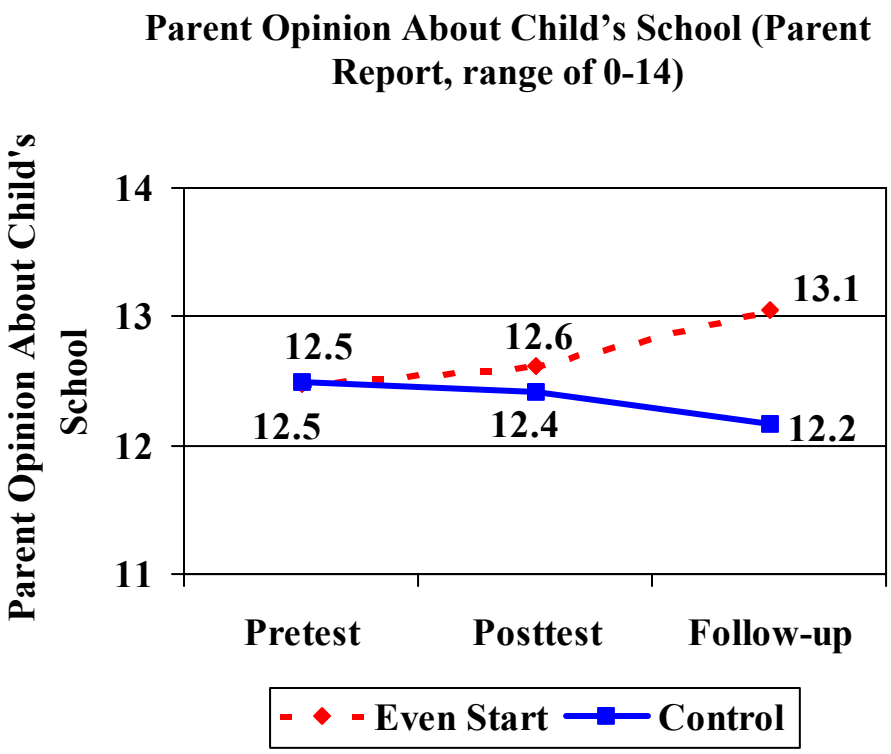


Variety of Non-Print Resources in the Home
(Parent Report, range of 0-16)




Variety of Print Resources at Home (Parent Report, range of 0-5)
Variety of Print Resources
4
3
2
3.0
3.0
3.2
2.7
3.0
3.0
Pretest
Posttest
Follow-up
Even Start
Control


Parent Participation in School Activities (Parent Report, range of 0-12)
Parent Participation in School Activities
5
4
3
2
4.6
4.5
4.4
4.2
3.0
2.8
Pretest
Posttest
Follow-up
Even Start
Control


Parent Opinion About Child's School (Parent Report, range of 0-14)
Parent Opinion About Child's School
14
13
12
11
12.5
12.6
13.1
12.5
12.4
12.2
Pretest
Posttest
Follow-up
Even Start
Control