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ABSTRACT

The Even Start Family Literacy Program is a national program that addresses the literacy and educational needs of adults in eligible families, teaches effective parenting skills, and addresses the preschool readiness needs of young children in the family. The Monongalia County (West Virginia) Even Start Program was unusual in that it took place in a rural area and used home visits as the primary service delivery mechanism. An independent, third-party evaluation of the Monongalia County program collected data from program records, interviews, observations, and seven participant outcome measures over a 2-year period. An innovation configuration matrix (ICM) was constructed and used to describe and evaluate eight program components: identification and recruitment, home visits, early childhood education, parenting education, adult education and literacy, collaboration, evaluation, and staff development. Findings indicate that the ICM is an accurate and useful portrayal of the program, and that the program had a large impact on adults' reading and mathematics literacy and parenting outcomes; tremendous impact on children's school readiness; and some impact on children's auditory comprehension, expressive communication, and total language development. Recommendations are offered concerning program continuation, program improvements, evaluation utilization, and new evaluations. (Contains nine references, seven data tables, and the ICM.) (SV)

Process and Outcomes Evaluation of an Even Start Program

by

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INTRODUCTION

The Even Start Family Literacy Program, started in 1989, is a national literacy program that identifies and addresses the developmental and educational needs of targeted families. The developmental and educational needs of eligible Even Start families are addressed in three different ways. First, the literacy and educational needs of the adults in the family are identified and addressed. Second, effective parenting skills for the adults are taught. Third, the preschool readiness needs of the children in the family are addressed with at-home and/or center-based early childhood education sessions. States receive their funding based on a formula related to the allocation they receive from the federal government for their Title I program. States then solicit grant applications from local agencies and make awards on a competitive basis (U.S. Congress, 1994).

The Monongalia County (WV) Even Start Program began in 1993. At the law requires, the program consists of three interrelated approaches to address family literacy and to prepare children for entrance into schooling: adult education, parenting education, and early childhood education. The goals of the program are:

Adult Education -	to provide and strengthen opportunities that will increase the literacy and education of parents;
Parenting Education -	to help parents gain competence in effective parenting practices that will maximize their child's development and assist them in becoming full partners in their child's education; and
Early Childhood Education -	to assist children in reaching their full potential as learners (Even Start Staff, 1995).

The unique feature of the Monongalia County Even Start Program is that it is mainly a home-based program. While the law requires that all Even Start programs conduct **some** home visits, in the Monongalia County program, home visits are the **primary** service delivery mechanism. Three Family Educators work with their assigned families to develop and schedule a plan of service. Most families are visited every other week in the homes by the Family Educator. Typically, these bi-weekly home visits last about one and a half to two hours each and include some adult education, some parenting education, and some early childhood education. A home visit usually begins with the collection of books and associated toys loaned during the prior visit and then moves into a learning activity with the child or children. Next, while the children are occupied, the Family Educator discusses child development issues or parenting concerns, such as discipline, with the parent. This is followed by some adult education. The home visit concludes with an inquiry about other needs the family might have that might be hindering progress in educational or other areas and scheduling the next visit.

EVALUATION DESIGN

The Monongalia County Even Start Program staff contracted with the Appalachia Educational Laboratory (AEL) in Charleston, West Virginia, to conduct an independent, third-party evaluation of their program. This AEL evaluation was designed to analyze much quantitative data already collected by program staff and the randomly-drawn Sample Study. Also, since the national evaluations seemed to report mainly on nonrural, center-based Even Start programs, a part of this evaluation was to determine, depict, and describe the unique aspects of Monongalia County's mostly rural and home-based Even Start program.

Four objectives guided this Even Start program evaluation. They were:

1. to identify (1) the essential components of the Monongalia County Even Start Program, and (2) the implementation variations of each component;
2. to evaluate the implementation of each of the Monongalia County Even Start Program's essential components;
3. to assess the adult and parenting education outcomes of the program's Sample Study adults, and
4. to assess the early childhood education outcomes of the program's Sample Study children (Meehan, 1997).

The Sample Study being completed by Abt Associates consists of 57 randomly-selected projects from the national evaluation's Universe Study of 490 state-administered Even Start projects (Tao, Swartz, St. Pierre, & Tarr, 1997). More detailed participation and outcome data were collected from parents and children in the Sample Study than from parents and children in the Universe Study. The Monongalia County program was one of the rural sites in the Sample Study. Families in the national sample had to meet additional criteria: This dramatically reduced the Monongalia County subsample to 16 families out of the 62 in the program. Data were collected over two years from each family. Eight of those subsample families enrolled in September-November of the 1994-1995 program year and the other eight families enrolled in September-November of the 1995-1996 program year. There was some attrition in the Monongalia County subsample.

Data for this evaluation were collected by a variety of ways, including program records, face-to-face interviews, observation of events, and seven participant outcome measures. Program records included home visit reports, Even Start Information System reports, staff self-assessment ratings, and records of all staff development sessions attended. Interviews with program staff, collaborators in other agencies, and clients were completed in a one-week site visit, as were observations of two program activities. The Comprehensive Adult Student Assessment System (CASAS, 1993) Life Skills test was used to assess adults' reading literacy and mathematics literacy, while the Home Screening Questionnaire (HSQ) was used to assess their parenting skills (Coons, Gay, Fandal, Ker, & Frankenburg, 1981). The PreSchool Inventory (PSI) was employed to assess school readiness skills of children (CTB/McGraw Hill, 1970) and the Preschool Language Scale-3 (PLS-3) was

selected to assess their language development (Zimmerman, Steiner, & Pond, 1992). The PLS-3 yields three scale scores: Auditory Comprehension, Expressive Communications, and Total Language. For each family in the subsample, one adult (all mothers) and one child were subjects in this evaluation.

Data analyses were conducted on both the qualitative and quantitative types of data. The Innovation Configuration Matrix (ICM) was constructed from program records, interviews, and observations (Hord, 1987). Next, the eight essential components in the final ICM were evaluated with those same data sources. Even Start service intensity data were computed from staff-completed records, including (1) home visits, (2) adult education contact hours, (3) parenting education contact hours, and (4) early childhood education days attended. Descriptive statistics were obtained for (1) each of the three program years in the study, (2) those three program years combined, and (3) the two treatment years for each family. Treatment effects data were the three obtained scores (pretest, posttest, and follow-up) on the three adult measures and the four child measures. Statistical analyses of the outcome measures were t-tests for dependent means by the matched pairs technique. Next, effect sizes were calculated for each t-test. Then, items or points per treatment month gained (or lost) were computed. Graphic displays of the outcome measures were designed. Last, the local subsample's results were compared to those of the national sample.

FINDINGS

In the final Even Start evaluation report, the findings were presented in two sections--program components and participants' educational and developmental outcomes. The findings narrative was supported by 21 tables and 8 graphic displays in the final report. Highlights from those two sections follow in this paper, which is based on the full report.

The completed ICM for the Monongalia County Even Start Program consists of eight essential components, each with four possible variations of implementation (A through D). See Figure 2 for the full ICM. The eight essential components are (1) identification and recruitment, (2) home visits, (3) early childhood education, (4) parenting education, (5) adult education/literacy, (6) collaboration, (7) evaluation, and (8) staff development. The program was judged to be operating at the ideal, or "A," variation on all eight components. The essential components of the program can be arranged in six concentric circles to depict the model of the program. The third circle contains components #3, #4, and #5. Figure 1 is the graphic depiction of the Monongalia County Even Start program.

The CASAS Reading Literacy instrument t-test and effect size results over two treatment years are displayed in Table 1. All of the mean scores across the three administrations were above the national high school level. Still, the subsample adults gained one and a half standard score points in the first treatment year and almost three and a half points in the second treatment year. More dramatically, over the two treatment years combined, the mean score gained nine points (for fewer adults with all three scores), which was statistically significant at the .001 level. At 0.818, this effect size was "large," while it was "small" for each year individually.

The CASAS Mathematics Literacy instrument t-test and effect size results over the two treatment years are displayed in Table 2. The subsample's pretest mean score was about 10 points below the national high school level, but it rose 6.75 points in the first treatment year, statistically significant at the .001 level. There was a 4.25 point gain in the second year (not significant) and a 12.38 point gain over the two-year treatment period, which was statistically significant at the .001 level. The effect sizes for the three gains were "medium," "small," and "large," respectively.

The adult parenting outcomes t-test and effect size results over the two years are displayed in Table 3. The mean HSQ score increased 3 points (56-point maximum) and was statistically significant at the .001 level. There was a 1.43 gain in the second year, which was not statistically significant. However, over the two-year treatment period, there was a 4.14 point increase, which was statistically significant at the .002 level. The effect size for each of the treatment years individually was "small," but for both years combined, it was 0.805, which was "large."

Moving to child outcomes, the 32-point PSI instrument assessed children's readiness for school. Table 4 displays the PSI results over the two treatment years. In the first year, the mean score increased 8 points to just 4 points below the maximum. This gain was statistically significant at the .001 level, and its effect size of 1.409 was labeled "very large." The gain in the second year

was less than half of the first year, but it was statistically significant at the .002 level and its effect size was "medium." Over the two treatment years, the gain was almost 11 points, which was statistically significant at the .0001 level. At 1.840, the two-year effect size was labeled "extremely large." Also, the PSI points gained per treatment month (0.764) was almost double that expected for normal growth (Tao, et al., 1997).

Table 5 displays the PLS-3 Auditory Comprehension scale results over the two treatment years. The mean was under the national norm, but at follow-up, it was 4 points above the norm. The mean score increased 3.46 points in the first treatment year, which was not statistically significant and its effect size was "small." The 6-point gain in the second treatment year was above the national norm, but again, it was not statistically significant and its effect size was "small." When combined (for children with all three scores), both treatment years yielded a 10.1 gain, and although it was not statistically significant, the effect size of 0.602 was "medium." The two-year gain was .710 points per treatment month on the 150-point maximum score.

Table 6 displays the PLS-3 Expressive Communications scale results over the two treatment years. The pretest mean was less than 1 point under the 100-point national norm, but by follow-up, it was 7 points above the national norm. The mean score increased 7.62 points in the first treatment year, which was not statistically significant and had a "small" effect size. Unexpectedly, the mean score dropped 3.36 points in the second year (the only decline in the evaluation), which was not statistically significant. When combined, the two treatment years yielded a 4-point gain to above the national norm, but it was not statistically significant and its effect size was "small."

Table 7 displays the PLS-3 Total Language scale results over the two treatment years. The mean was a little more than 4 points under the norm at pretest, but moved up to more than 8 points above the norm at follow-up. The mean score increased nearly 4 points in the first year, which was not statistically significant and had a "small" effect size. In the second year, the mean score gained 5.6 points and, although not statistically significant, the 0.513 effect size was "medium." The two-year effect size was 0.569, also "medium." The two-year effect size was 0.569, also "medium".

Finally, another way to summarize the adult and child outcomes in this evaluation was to average the two-year (pretest to follow-up) effect sizes. The average two-year effect size for the three adult outcome measures was 0.893, which is "large" in social science research. The average two-year effect size for the four child outcome measures was 0.823, which also is "large."

CONCLUSIONS

Thirteen conclusions were drawn from the evaluation findings. First, the final Innovation Configuration Matrix of the Monongalia County Even Start Program can be employed to describe the program to others but, moreover, to differentiate it from others on the basis of where other programs are operating with respect to the four variations for each of the eight essential components.

Second, it is concluded that the graphic depiction of the eight essential components in six concentric circles is an accurate and useful portrayal of the Monongalia County Even Start Program.

Third, it is concluded that the Monongalia County Even Start Program had a large impact on adults' Reading Literacy, especially over the two-year treatment period.

Fourth, it is concluded that the Monongalia County Even Start Program had a large impact on adults' Mathematics Literacy, especially in the first year in comparison to the second year, and when the two years were combined.

Fifth, it is concluded that the Monongalia County Even Start Program had a large impact on adults' parenting outcomes, especially in the first year in comparison to the second year, and when the two years were combined.

Sixth, it is concluded that the Monongalia County Even Start Program had tremendous impact on children's readiness for school outcomes, especially in the first year in comparison to the second year, but even more so when the two treatment years were combined.

Seventh, it is concluded that the Monongalia County Even Start Program had some impact on children's Auditory Comprehension outcomes, especially over the two-year treatment period rather than either year individually.

Eighth, considering the up, down, then up again, movement of the mean scores, it is concluded that the Monongalia County Even Start Program had some impact on children's Expressive Communications outcomes over the two-year treatment period.

Ninth, it is concluded that the Monongalia County Even Start Program had some impact on children's Total Language development outcomes over the two-year treatment period and, further, more so over the second year in comparison to the first year.

Tenth, it is concluded that the Monongalia County Even Start Program impacted adults' CASAS Mathematics Literacy and children's readiness for school (PSI) and PLS-3 Expressive Communications outcomes the most for the first treatment year. For the second treatment year, the program impacted the children's PLS-3 Auditory Comprehension and Total Language outcomes the

most; and for both years combined, the program impacted adults' CASAS Mathematics Literacy and children's readiness for school (PSI), and PLS-3 Total Language outcomes the most.

Eleventh, it is concluded that the locally- and nationally-developed instruments employed in this evaluation of the Monongalia County Even Start Program were both useful and effective. However, it was found that three of the subsample children reached the ceiling score on the PSI at the end of their second year in the program.

Twelfth, it is concluded that, overall, the Monongalia County Even Start Program is a comprehensive, rural, home-based family literacy program that produced many positive impacts on the adults and children studied in this effort. It is concluded that the Monongalia County staff have designed and implemented an effective rural, home-based Even Start program for its clients.

Thirteenth, in the area of needed improvements, it is concluded that there is insufficient data on the fathers of the families in the Monongalia County Even Start Program to make any statements of impact on them. There is not enough service delivery nor outcome data on the fathers to analyze at the level of the mothers in the families.

RECOMMENDATIONS

Recommendations from this evaluation were presented in four major headings of (1) program continuation, (2) program improvements, (3) evaluation utilization, and (4) new evaluations.

Regarding program continuation, it was recommended that the Monongalia County Even Start Program be continued in future years; that the collection of adult and child outcome measure data be continued; that the staff's self-assessment activities continue; that the staff consider expanding their program to other families, if additional resources can be found; and that staff should continue to identify, implement, and evaluate new/different diagnostic and outcome measures with adults and children.

In the area of program improvements, it was recommended that program staff should strive to improve the children's PLS-3 Auditory Comprehension scores; strive to get more fathers in the families involved in the events, sessions, activities, and other components; continue to develop original curriculum materials for the program; implement the "collaboration" part of their own action plan first, and consider using the 64-item PSI instrument in place of the 32-item version.

With respect to evaluation utilization, it was recommended that this evaluation report be submitted to the national ERIC system for accession; that this report be disseminated locally, regionally, and nationally both within and outside the Even Start system; that the ICM and graphic model of the program be disseminated widely; and that local staff should use this evaluation report or relevant sections to seek some sort of national recognition for the Monongalia County Even Start Program.

Finally, regarding new evaluations, it was recommended that program staff collect and report on case histories of Even Start participants who have been especially successful; if the opportunity arises, staff should participate in the next national evaluation; and this evaluation should be repeated in two years with two additional cohorts of Even Start families and the same or comparable instrumentation.

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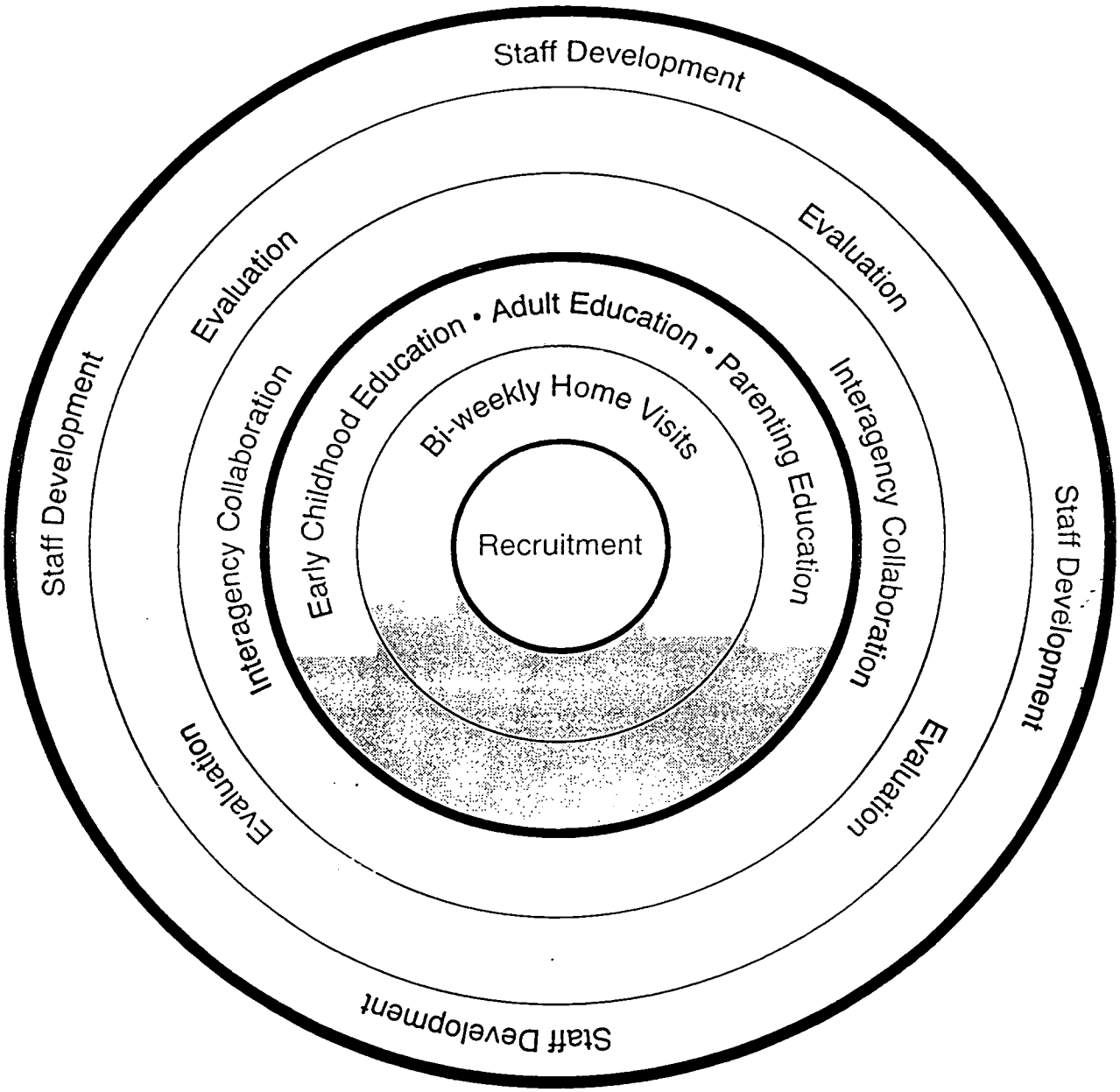

Figure 1. Graphic Depiction of the Monongalia County Even Start Program

Even Start Program, Monongalia County Schools

Innovation Configuration Matrix

Component #1: Identification and Recruitment			
A. Staff consistently employ a wide variety of recruitment practices, including door-to-door recruitment; awareness sessions; community information campaigns; and solicitation and referrals from Head Start and Title I teachers, classroom teachers, other service agencies, and clients in the program. Clear eligibility criteria have been communicated to all parties.	B. Staff employ a variety of recruitment practices, including door-to-door recruitment, and soliciting and receiving referrals from Head Start and Title I teachers, plus any two of the other five practices named in the cell to the left. Clear eligibility criteria have been communicated to all parties.	C. Staff employ several recruitment practices, including at least one form of soliciting of referrals.	D. Staff rely mainly on others to provide referrals of potential client families.
Component #2: Home Visits			
A. Staff consistently schedule, plan, and complete biweekly home visits in which literacy is the main focus, and each visit includes an activity in two areas: (1) early childhood education, and (2) parenting. Adult education is also a focus of that visit or of additional contacts.	B. Staff consistently schedule, plan, and complete biweekly home visits in which literacy is a focus, and each visit includes an activity in at least two of the three areas.	C. Staff consistently schedule, plan, and complete monthly home visits in which literacy is a focus, and each visit includes an activity in at least two of the three areas.	D. Staff consistently schedule, plan, and complete monthly or bimonthly home visits that include at least one activity in one of the three areas.
Component #3: Early Childhood Education			
A. Staff regularly plan and complete interactive learning activities with parent and child that are based on validated curricula; address the developmental areas of the child (social and emotional, motor, language, and intellectual); are based on the needs of the child; are interesting and enjoyable to the child; and are models for parents to follow.	B. Staff regularly plan and complete interactive learning activities with parent and child that are based on established curricula, address the majority of the developmental areas of the child, are based on the needs of the child, are interesting and enjoyable to the child, and are models for parents to follow.	C. Staff regularly plan and complete learning activities with the child that are based on some curricula, address several of the developmental areas of the child, are based on the needs of the child, and are interesting and enjoyable to the child.	D. Staff complete learning activities with the child that address one area of child development.

KEY: ——— = To left of this line is acceptable practice.

— — — = To left of this line is ideal practice.

Component #4: Parenting Education			
A. Staff regularly plan and complete interactive learning experiences that are based on the needs of the family, are based on validated curricula, utilize parent concerns about child raising, address a wide variety of parenting issues, are sensitive to family situations, are designed to teach the parent about the stages of child development, and are discussed in terms of application.	B. Staff regularly plan and complete interactive learning experiences that are based on the needs of the family, utilize parent concerns about child raising, address a wide variety of parenting issues, and are discussed in terms of application.	C. Staff periodically plan and complete learning experiences that are based on the needs of the family, and address several parenting issues.	D. Staff sometimes complete learning experiences that address a parenting issue.
Component # 5: Adult Education/Literacy			
A. Staff regularly discuss with parents a wide variety of possible outcomes to establish realistic long- and short-term educational goals, and to help eliminate common barriers such as transportation and child care; then help parents adjust into instruction through physical presence, encouragement, and the provision of services, if necessary; and help parents assess their learning progress through periodic monitoring and assessment.	B. Staff regularly discuss with parents a variety of possible outcomes to establish long- and short-term educational goals, and to help eliminate a typical barrier; then help parents adjust into instruction through encouragement and the provision of services, if necessary; and discuss parents' progress toward goals.	C. Staff regularly discuss with parents a variety of possible outcomes to establish short-term educational goals, then help parents adjust into instruction through encouragement, and discuss parents' progress toward goals.	D. Staff discuss with parents possible outcomes; may help set up a short-term goal, and might discuss progress.
Component #6: Collaboration			
A. Staff regularly work with a wide variety of different service agencies regarding multiple needs of client families; share agency/family information, if appropriate; communicate regularly, sometimes in meetings and other face-to-face situations; solicit other agencies' input as to Even Start program delivery; refer client families to proper agencies; develop common purposes and directions of resources; and work with local businesses to achieve goals.	B. Staff regularly work with a variety of service agencies regarding multiple needs of client families; share agency/family information, if appropriate; communicate regularly; refer client families to proper agencies; conduct common meetings; and develop common purposes.	C. Staff work with several service agencies regarding multiple needs of client families; share agency/family information, if appropriate; and refer families to agencies as needed.	D. Staff may work with service agencies for a few client families; share some agency/family information, if appropriate; and refer families to agencies as needed.

Component #7: Evaluation			
A. Staff maintain three levels of evaluation data to assure program effectiveness: (1) staff consistently complete and maintain established family reports that include the intake form, home visit report, book list, contact log, client assessment profile, and annual local and national family summary reports; (2) staff review and explore its processes and effectiveness through local evaluations; and (3) staff periodically contract with a third-party evaluator to conduct formative and summative evaluations resulting in reports that meet the *Program Evaluation Standards.*	B. Staff maintain two levels of evaluation data to assure program effectiveness: (1) staff consistently complete and maintain established family reports that include the intake form, home visit report, book list, contact log, client assessment profile, and annual local and national family summary reports; and (2) staff periodically contract an outside evaluator to conduct a local evaluation.	C. Staff maintain two levels of evaluation data to assure program effectiveness: (1) staff consistently complete and maintain established family reports that include the intake form, home visit report, contact log, a few client assessments, and annual local and national family summary reports; and (2) staff review and explore its processes and effectiveness through local evaluations.	D. Staff complete and maintain one level of evaluation data, the annual national family summary report.
Component #8: Staff Development			
A. Staff have completed extensive training and certification in the program's nationally validated curriculum model that addresses two of the Even Start program components: early childhood education and parenting. Staff have also completed training so that they are recognized as adult educators. Staff have provided input into the design and selection of ongoing and varied staff development sessions. Sessions are both program and individual-based, and participation and involvement is shared/discussed with other program staff. Cross-training and learning with collaborators occurs frequently.	B. Staff have completed extensive training and certification in the program's nationally validated curriculum model that addresses two of the Even Start program components: early childhood education and parenting. Staff have also completed training so that they are recognized as adult educators. Staff development sessions are ongoing and varied, and are program-based; staff development information is shared/discussed with other program staff.	C. Staff have completed extensive training and certification in the program's nationally validated curriculum model that addresses two of the Even Start program components: early childhood education and parenting. Staff have also completed training so that they are recognized as adult educators.	D. Staff attend some training related to the Even Start program; the training may be varied, and it may be shared with others.

Table 1

CASAS Reading Literacy T-Test and Effect Size Results
Over Two Treatment Years

Test Administration	Number	Mean[a]	Standard Deviation	Coefficient of Variation	Standard Error of Mean	t-Value	Probability	Mean Score Difference	Effect Size
Pretest	13	229.46	13.84	.060	3.837	0.64	.536	+1.54	0.111
Posttest	13	231.00	17.46	.076	4.841				
Posttest	8	235.38	10.72	.046	3.789	1.32	.229	+3.38	0.315
Follow-up	8	238.75	11.37	.048	4.008				
Pretest	8	229.75	11.00	.048	3.890	5.11	.001	+9.00	0.818
Follow-up	8	238.75	11.34	.047	4.008				

[a]Reported in scale score points, which range from 150 to 260.

Table 2

CASAS Mathematics Literacy T-Test and Effect Size
Results Over Two Treatment Years

Test Administration	Number	Mean[a]	Standard Deviation	Coefficient of Variation	Standard Error of Mean	t-Value	Probability	Mean Score Difference	Effect Size
Pretest	12	215.50	11.17	.052	3.225	4.23	.001	+6.75	0.604
Posttest	12	222.25	13.96	.063	4.029				
Posttest	8	225.25	13.76	.061	4.865	1.82	.112	+4.25	0.309
Follow-up	8	229.50	10.07	.044	3.561				
Pretest	8	217.13	11.72	.054	4.142	5.15	.001	+12.38	1.056
Follow-up	8	229.50	10.07	.044	3.561				

[a]Reported as scale score points, which range from 150 to 260.

Table 3

Home Screening Questionnaire for 3- to 6-Year-Old Children
T-Test and Effect Size Results Over Two Treatment Years

Test Administration	Number	Mean[a]	Standard Deviation	Coefficient of Variation	Standard Error of Mean	t-Value	Probability	Mean Score Difference	Effect Size
Pretest	11	36.91	7.61	.206	2.294	4.82	.001	+2.82	0.370
Posttest	11	39.73	7.43	.187	2.240				
Posttest	7	43.57	4.28	.098	1.616	1.43	.202	+1.43	0.334
Follow-up	7	45.00	3.79	.084	1.431				
Pretest	7	40.86	5.15	.126	1.945	5.00	.002	+4.14	0.805
Follow-up	7	45.00	3.79	.084	1.431				

[a]Reported as total raw score items, which range from 0 to 56 points.

Table 4

PreSchool Inventory T-Test and Effect Size Results
Over Two Treatment Years

Test Administration	Number	Mean[a]	Standard Deviation	Coefficient of Variation	Standard Error of Mean	t-Value	Probability	Mean Score Difference	Effect Size
Pretest	11	18.09	5.61	.310	1.692	6.89	.0001	+7.91	1.409
Posttest	11	26.00	3.46	.133	1.044				
Posttest	11	25.00	5.24	.210	1.578	4.10	.002	+3.27	0.625
Follow-up	11	28.27	3.85	.080	1.161				
Pretest	10	18.40	5.82	.316	1.839	9.76	.0001	+10.70	1.840
Follow-up	10	29.10	2.85	.098	0.900				

[a]Reported as total raw score points, which range from 0 to 32 points.

Table 5

PLS-3 Auditory Comprehension T-Test and Effect Size
Results Over Two Treatment Years

Test Administration	Number	Mean[a]	Standard Deviation	Coefficient of Variation	Standard Error of Mean	t-Value	Probability	Mean Score Difference	Effect Size
Pretest	13	93.31	15.40	.165	4.272	0.79	.446	+3.46	0.225
Posttest	13	96.77	14.72	.152	4.081				
Posttest	11	98.00	15.37	.157	4.634	1.30	.223	+6.00	0.390
Follow-up	11	104.00	14.57	.140	4.392				
Pretest	11	93.91	16.77	.179	5.057	1.59	.143	+10.09	0.602
Follow-up	11	104.00	14.57	.140	4.392				

[a]Reported as standard score points, which range from 50 to 150.

Table 6

PLS-3 Expressive Communication T-Test and Effect Size
Results Over Two Treatment Years

Test Administration	Number	Mean[a]	Standard Deviation	Coefficient of Variation	Standard Error of Mean	t-Value	Probability	Mean Score Difference	Effect Size
Pretest	13	99.23	16.37	.165	4.539	1.82	.093	+7.62	0.465
Posttest	13	106.85	13.01	.122	3.607				
Posttest	11	110.36	9.62	.087	2.899	0.96	.360	-3.36	-0.350
Follow-up	11	107.00	13.79	.129	4.158				
Pretest	11	103.00	14.33	.139	4.321	1.24	.243	+4.00	0.279
Follow-up	11	107.00	13.79	.129	4.158				

[a]Reported as standard score points, which range from 50 to 150.

Table 7

PLS-3 Total Language T-Test and Effect Size Results
Over Two Treatment Years

Test Administration	Number	Mean[a]	Standard Deviation	Coefficient of Variation	Standard Error of Mean	t-Value	Probability	Mean Score Difference	Effect Size
Pretest	13	95.85	16.56	.173	4.592	1.09	.296	+3.92	0.237
Posttest	13	99.77	12.11	.121	3.359				
Posttest	10	103.00	10.92	.106	3.454	1.26	.238	+5.60	0.513
Follow-up	10	108.60	12.69	.119	4.012				
Pretest	10	98.50	17.76	.180	5.616	2.03	.073	+10.10	0.569
Follow-up	10	108.60	12.69	.117	4.012				

[a]Reported in standard score points, which range from 50 to 150.

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