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RESEARCH ARTICLE

She is awesome and retains information like a sponge: Parent and Child Outcomes of the Learning Connections Family Involvement Curriculum

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Past research on family involvement suggests that home based forms of involvement are especially important in supporting learning in the early childhood years. Parents can be effective change agents, especially when they are given strategies for teaching particular content area skills. This study addressed the effects of family participation in the home component of an emergent literacy and mathematics curriculum. Participants were 321 Head Start children and their parents recruited over a four year period. Families received weekly home learning activities to do with their child that closely matched the content of the classroom curriculum. Involvement in the home curriculum was significantly associated with children's language, literacy, and math outcomes, controlling for child age, dual language status, pretest performance, and classroom quality. When families completed more of the home activities, their children made greater progress during the school year. Families enjoyed doing the home activities and parents reported increased confidence in their teaching skills. Results suggest that given appropriate support, families can successfully address curriculum goals at home and provide an added value to learning that occurs in the Head Start classroom.

Family engagement is a cornerstone of the Head Start organizational philosophy and Program Performance Standards. An excerpt from the recent *Head Start Parent, Family, and Community Engagement Framework* provides a rationale for emphasizing family involvement: "When parent and family engagement activities are systemic and integrated across program foundations and program impact areas, family engagement outcomes are achieved, resulting in children who are healthy and ready for school" (U.S. Department of Health and Human Services, 2011, p. 1). The underlying expectation is that children benefit when their families are highly involved.

Family involvement is a multidimensional construct that includes a wide variety of both individual and organizational beliefs and practices. Forms of family involvement discussed in the literature include: (a) basic parenting, (b) home-school communication, (c) supporting children's school-related learning at home, (d) direct school participation, (e) school leadership, (f) home-community partnerships, and (g) aspirations and expectations for children's academic success (Epstein, 1995; Fan & Chen, 2001; Fantuzzo, McWayne, Perry, & Childs, 2004; U.S. Department of Health and Human Services, 2011). In the early childhood period, the forms of

family involvement most strongly associated with children's developmental skills are those involving direct parental teaching, stimulation, and modeling in the home (Fantuzzo et al., 2004; McWayne, Hampton, Fantuzzo, Cohen, & Sekino, 2004). School-based forms of involvement and parental expectations play a more prominent role as children mature (Fan & Chen, 2001; Hill& Tyson, 2009; Jeynes, 2005, 2007).

Parents' provision of learning materials, rich stimulation, and informal instruction of their children in the context of everyday home and neighborhood life has a widespread influence on preschool children's language, cognitive, and early academic skills. For example, the frequency and nature of parent's conversations with children, particularly the use of sophisticated vocabulary and decontextualized talk, predict oral language growth (Dickinson & Tabors, 2001; Hart & Risely, 1995). Parent-child book reading is a well-documented context for promoting vocabulary acquisition (Bus, van IJzendoorn, & Pelligrini, 1995; Scarborough & Dobrich, 1994), while parents' affect and animation during book-reading are associated with children's motivation to engage with books (Sonnenschein & Munsterman, 2002). Parents' informal instructional practices such as teaching the alphabet, encouraging writing, and helping children sound out printed words, are associated with concurrent emergent literacy skills and later reading fluency (Sénéchal, 2006; Sénéchal & LeFevre, 2002). Parents also teach early mathematics through activities such as rote counting, grouping, matching, playing board games, and by using spatial and quantity terms in conversation (Benigno & Ellis, 2004; Blevins-Knabe & Musun-Miller, 1996; Saxe, Guberman, & Gearhart, 1987).

There have been systematic efforts to teach parents how to be more effective teachers of their own children. Among the most widely-used family curricula are the two home visiting programs, *Parents as Teachers* (PAT) and the *Home Instruction Program for Preschool Youngsters* (HIPPY). These programs address general parenting skills such as knowledge of child development, self-efficacy, and interaction strategies. Both programs encourage parents to read to their children and engage in a variety of home learning activities; HIPPY also provides with structured teaching materials. However, evidence to support the effectiveness of these programs is mixed (Baker, Piotrkowski, & Brooks-Gunn, 1999; Wagner, Spiker, & Linn, 2002).

Outcomes appear to be stronger for programs that support parents in teaching a clearly delineated content area. When parents are trained to use an interactive style of book-reading called dialogic reading, they make clear changes in their read-aloud strategies, their children also show significantly greater learning of both book-specific vocabulary and generalized expressive language skills compared to children of parents who read aloud in their natural manner (Arnold, Lonigan, Whitehurst, & Epstein, 1994; Whitehurst, Falco, Lonigan, Fischel, DeBaryshe, Valdez-Menchaca, & Caulfield, 1988). Dialogic reading interventions have been effective even when parent training was minimal (e.g., two 20-minute in-person or videotape training sessions). Parents of elementary school children have also been taught to listen to their children read aloud, or to tutor their children in the use of specific reading strategies. Although both approaches result in improved reading performance, the effect size for parent tutoring is much larger (Sénéchal & Young, 2008).

Family home math curricula have also been evaluated. Sears and Mediaris (1992) developed a culturally-sensitive series of home math activities for Native American Head Start families. Families received monthly in-school meetings and take-home packets during the school year and summer. Children who participated in the home curriculum had higher kindergarten entry assessment scores than children from the same Head Start program one year earlier.

Starkey & Klein (2000) provided an eight-session training program for English- and Spanish-speaking Head Start parents. Using a group training format, teachers modeled (and parents then practiced) how to do the activities, monitor a child's responses, and adjust the activities accordingly. Parents used the math kits at home over a four month period. Children in the intervention condition showed significantly greater gains on enumeration and spatial skills than did control children.

Taken as a whole, these more focused training studies demonstrate that parents can have a strong effect on their children's acquisition of language, literacy, and early math skills. In fact, parents have sometimes been found to be more effective change agents than teachers. This has been the case for one study of dialogic reading in the home and school settings (Lonigan & Whitehurst, 1998). Additionally, a meta-analysis of varied emergent literacy interventions found a stronger effect for home-only interventions than for interventions conducted at both home and school (d = .47 vs. .13). This suggests that interventions in which parents are taught content-specific instructional skills are an enormous potential resource for Head Start programs.

A variation on parent-as-teachers interventions that has received less attention is to design the home curriculum to closely match and complement the classroom curriculum. An example of this approach is shown in Starkey, Klein, and Wakeley's (2004) preschool mathematics curriculum. In their program, Head Start parents were given three workshops on mathematics topics covered in the classroom curriculum as well as home learning materials and activity guides. Although the relative contributions of the home and school components could not be assessed, the overall package was effective in increasing children's mathematics performance.

Given that the professional literature has suggested that differences in home and school values, expectations, and practices plays a role in academic disparities (Tharp, Estrada, Dalton, & Yamauchi, 2000) it is surprising that the field does not have more examples of tightly connected home and school curricula. Learning Connections (LC) (Gorecki & DeBaryshe, 2004) is an emergent literacy and mathematics enrichment curriculum that has parallel classroom and home components. The purpose of this study was to explore the effects of parental involvement in the home component of the LC curriculum. This study addressed two research questions. First, what were the effects of family participation in the LC home curriculum on children's early academic outcomes? It was hypothesized that family involvement, as measured by the number of home learning activities completed, would be associated with children's learning gains above and beyond the effects of classroom quality. Second, what was the nature of parents' experiences with the home curriculum? We used qualitative methods to explore parents' views about the curriculum including both the implementation process and child and parent outcomes.

METHOD

Participants

Participants were 321 Head Start children and their parents or guardians[1]. The average child age at pretest was 44.81 months (range 30 to 60 months). Four percent of children had an

[1]Across project years 10% of families had more than one enrolled child. Data were collected separately for each sibling.

Individualized Education Plan, 51% were boys, and 37% were dual language learners (DLL), i.e., came from families that spoke either a non-English language or a combination of English and other languages at home. More than 20 different home languages were represented in the sample including a variety of Micronesian languages and Chinese and Filipino dialects. The ethnic background of the sample was as follows: 42% Native Hawaiian, 25% other Pacific Islander, 22% Asian American, 5% Latino, 4% African American, and less than 1% each Native American and Caucasian.

Participating children were from ten intervention sites in an Early Reading First project. Sites were licensed for 16-20 children and were staffed by either two or three teachers with an average of 8.13 children per teacher. Over the course of the project, there was turn-over in nine of the 30 teaching positions; most staff changes involved an assistant teacher leaving for new employment at the end of a school year. We used a staggered cohort design: Five sites started in the first project year and five additional sites started in year two. The original design called for each site to continue for two years, however, sites were later invited to continue for an optional third year. As a result, of the 10 sites, five participated in project year 1, ten in year 2, eight in year 3, and four in year 4.

The sample of 321 children represented 83% of the total 386 children enrolled in participating sites for at least six consecutive months. Consent among enrolled children was universal with the exception of one child who was in temporary foster care. Children retained for analysis had pretest and posttest data for at least one outcome measure; excluded children missed an entire assessment wave due to prolonged absence, late enrollment, or exiting the program early in the school year. Twenty-two percent of children attended Head Start for two consecutive years. In this paper we included only data from the child's first year in the project. The number of children contributing to the study sample was 77, 107, 92, and 45 for years one through four, respectively.

Procedures

At the start of each project year, information and recruitment meetings were held in each site for the purpose of explaining the project and obtaining parents' informed consent. Children were assessed by trained evaluators at the start and end of each project year. Parents completed annual pre- and posttest surveys as well as a weekly feedback sheet relating to the home curriculum. Trained evaluators collected classroom quality data two to three times per year.

Teachers implemented the Learning Connections (LC) curriculum (Gorecki & DeBaryshe, 2004). LC is a developmentally-sequenced enrichment curriculum that focuses on oral language, phonological and phonemic awareness, print concepts and alphabet knowledge, emergent writing, number sense and mathematical operations, geometry, and measurement. The LC curriculum has been evaluated in two quasi-experimental field trails and has been shown to have positive effects on children's academic outcomes compared to both a teacher-developed curriculum and the Creative Curriculum (DeBaryshe & Gorecki, 2005, 2007). LC has 40 specific learning goals organized into seven larger domains (see Table 1). Daily lesson plans were developed to include a circle time activity, two or three small group activities, and suggestions for transition and extension activities. Small group lesson plans were prepared for two instructional levels, with different activities for children with more versus less advanced skills.

Each activity had several variations so teachers could tailor the difficulty to best suit each child in her small group (see DeBaryshe, Gorecki, & Mishima-Young, 2009 for a description of LC curriculum differentiation). Project teachers were encouraged to work with the same small groups over time, in order to become more familiar with each child's progress. Teachers were also given training on strategies to support dual language learners and children with special needs.

TABLE 1

LC Curriculum Domains and Goals

Domains	Goals	
Oral Language (O)	O1	To increase each child's vocabulary
	O2	To engage in conversations of increased length and complexity
Phonological and Phonemic Awareness (P)	P1	To segment and blend syllables
	P2	To recognize and generate rhymes
	P3	To recognize and generate words with the same initial, final, and medial sounds
	P4	To segment and blend phonemes
Alphabet Knowledge and Print Awareness (A)	A1	To identify the correspondence between letter symbols and letter sounds
	A2	To recognize and identify letter names
	A3	To track print from left to right and top to bottom
	A4	To use environmental print
	A5	To become aware of the usefulness of print
	A6	To understand that writing conveys meaning
	A7	To recognize and read C-V-C words
Emergent Writing (W)	W1	To convey meaning via writing
	W2	To strengthen fine motor muscles
	W3	To use tools in preparation for writing
	W4	To encourage higher levels of emergent writing
	W5	To begin to spell simple words
	W6	To use a left-to-right orientation when writing

(Continued)

TABLE 1, cont'd.

LC Curriculum Domains and Goals

Domains	Goals	
Numbers and Mathematical Operations (N)	N1	To understand forward one-to-one correspondence
	N2	To understand and associate quantities and numerals from 1-10
	N3	To use alternative counting units
	N4	To understand that adding/taking away objects increases/decreases total number
	N5	To introduce the concept of addition using composite units
	N6	To use manipulatives to indirectly perform multiplication/division operations
Geometry (G)	G1	To identify basic and advanced shapes
	G2	To understand that shapes can be made from two or more combinations of shapes
	G3	To identify a given shape inside a larger array of shapes
	G4	To count occurrences of specific shapes
	G5	To compare attributes of objects e.g., shape, size, color, thickness, number of sides/corners
	G6	To use geometric vocabulary terms
Measurement (M)	M1	To distinguish dimensions of measurement e.g., height, width, length, area, volume
	M2	To use nonstandard units of measurement
	M3	To use informal and formal measurement tools
	M4	To use a composite unit to measure items
	M5	To understand the concept of volume
	M6	To understand the concept of area
	M7	To use measurement vocabulary terms
Approaches to learning (L)	A1	To increase attention to and persistence with LC activities
	A2	To incorporate newly learned skills in free play

The home component of the curriculum consisted of weekly home activities that extend content introduced in the classroom (see the Appendix A-C for more information). Each activity was designed to take 10-15 minutes to complete in the context of regular family routines. Examples of home activities include (a) taking a nature walk to collect objects, clapping the names of each object syllable-by-syllable and sorting the objects by the number of syllables in each name; (b)

using a nonstandard measuring tool (a paper slipper) to measure and compare the heights of different family members; and (c) identifying the first sound heard in the names of different food items consumed at a family meal. Each week, families received a one-page, written and illustrated instruction sheet as well as any needed materials not readily available at home. Families were also provided with age-appropriate books and were encouraged to read aloud on a regular basis, preferably daily.

Support for families was provided through two mechanisms. Every other week, a coach was present during pick-up or drop-off time. The coach posted samples of the two upcoming home activities on a display board that remained in the classroom until the next demonstration session. The coach spent about five minutes with each parent, during which time she demonstrated the activity, discussed specific learning goals, provided tips on individualization based on her knowledge of the child's language use and classroom performance, and encouraged parent-to-parent conversation and support. Three workshops were also offered to provide more in-depth information about the developmental foundations of the home curriculum. Workshops lasted approximately one hour and were held in the classroom; each session included a research overview, hands-on activities, and discussion. The first workshop provided an orientation to the content areas of the LC curriculum; parents also rotated through four learning centers at which they participated in sample LC classroom activities. The second workshop focused on developmental sequences within emergent writing and math. Parents compared developmental writing samples with their own child's classroom journals, and practiced volume and measurement activities. The final workshop addressed the transition to kindergarten and was conducted in partnership with the neighborhood elementary school. Families met elementary school staff, observed a kindergarten literacy lesson, and received kindergarten registration materials. When possible, oral interpretation of coaching sessions and family workshops, and written translations of consent forms and project surveys were provided in families' native language. Due to limited staffing resources, we were able to provide support for only five languages. All home activities were also translated into Chuukese.

Because the funding cycle did not match the school calendar year, curriculum implementation began in January of the first project year. The school calendar also changed over the course of the project. As a result, the number of weekly home activities ranged from 22 to35, depending on the project year, and only the first workshop was given in project year one. Classroom quality data were collected at two time points in project years one and four and three time points in years two and three.

MEASURES

Involvement with the Home Activities. Each week families were given a home activity feedback sheet. Parents were asked to list the names of all books read with their child that week and to provide written comments on three questions about the week's activity: "What did you and your child enjoy or not enjoy?" "What would you keep or change about this activity?" and "Please describe how your child did the activity." The percentage of feedback sheets returned was used as a proxy measure of the actual completion of the home activities.

Parent Satisfaction. At the end of each project year parents completed an anonymous satisfaction survey. This survey included nine items answered on a four-point Likert scale (where 1 = "strongly disagree" and 4 = "strongly agree"). See Table 4 for item wording. Parents were also asked to provide written comments on two open-ended questions: "What did you like best about Learning Connections" and "What can be done to make Learning Connections better?"

Child Academic Skills. Children were tested on four standardized instruments: the *Peabody Picture Vocabulary Test, Third Edition* (PPVT) (Dunn & Dunn, 1997), *Test of Early Reading Abilities, Third Edition* (TERA) (Reid, Hresko, & Hammill, 2001), *Phonological Awareness Literacy Screening Pre-K* (PALS) (Invernizzi, Sullivan, Meirer & Swank, 2004), and the mathematics and logical operations scale of the *Developing Skills Checklist* (DSC) (CTB/McGraw-Hill, 1990). All four instruments have acceptable test-retest and inter-rater reliability, internal consistency, and construct and criterion-related validity for this age group. The PPVT, TERA, and DSC are also nationally normed; however, none provide separate norms for dual language learners. The PPVT was used to measure receptive vocabulary. The TERA is a measure of emergent reading that includes alphabet knowledge, print conventions, and the derivation of meaning from logos and print. The PALS includes sections relating to alphabet knowledge (upper case letter names and lower case letter sounds), phonemic awareness (alliteration and rhyme), print concepts, and name writing. We did not administer the section relating to knowledge of specific nursery rhymes, as we thought this content could be culturally biased. The DSC assesses emergent math skills including counting, operations, conservation of quantity and length, shape recognition, sorting, patterning, and sequencing. Age-adjusted standardized scores were used for the PPVT and TERA. The TERA has norms for children as young as 42 months; thus, some children were too young to be assigned standard scores at pretest. Standard scores are not available for the PALS and DSC, so total raw scores were used.

Classroom Quality. Classroom quality data were collected by trained evaluators using what was at the time the current preschool version of the Classroom Assessment Scoring System (CLASS) (Pianta, La Paro, and Hamre, 2005). Observers were trained by one of the instrument's authors to a criterion of 80% reliability or higher. Field reliability was collected on 10% of the data to ensure that this level of reliability was maintained throughout the project. The CLASS measures teacher-child interaction on 11 discreet items, each scored using a seven-point Likert scale (with higher scores indicating better quality). Items are clustered to represent the domains of emotional climate, classroom management, and instructional support for language and cognitive development. The CLASS has good internal consistency, inter-rater reliability, and criterion-related validity. In particular, CLASS scores are associated with children's academic and socioemotional gains over the school year (Pianta et al., 2005). Because the CLASS domain scores were highly correlated in our sample, we created a composite score by averaging across items at each observation wave. For the present analysis, we then averaged composite scores across waves to create a single CLASS score that represented the average observed classroom quality for a given school year.

RESULTS

Home Activity Participation

Descriptive statistics on key variables, including the home activity return rates are shown in Table 2. Although the overall proportion of home activity feedback sheets was .54, results of an analysis of variance indicated that return rates differed by project year ($F = 24.93$, $p < .001$). Means (and standard deviations) were .37 (.27), .48 (.29), .59 (.34) and .81 (.24) for years one through four, respectively. Follow-up Tukey tests indicated that return rates increased with each successive year ($p < .05$). Each year we saw a similar seasonal effect, with declining participation over the course of the school year. Analyses not reported here indicate no systematic difference in return rate as a function of activity content (e.g., literacy vs. math).

Predicting Children's Academic Skills

Since the home activity return rate increased with each project year, we conducted a screening to determine whether the predictive associations between home activity return rate and child outcomes varied as a function of project year. All year by return rate interactions were nonsignificant, so year was excluded from further analysis.

Due to the nested structure of data (i.e., children nested within classrooms), a series of multilevel analyses was conducted to take into account the possible dependency between children within the same classroom[2] who share their daily experiences and environmental features such as teaching staff and peer group. Level 1 variables were those unique to each child: age, whether the child was a dual language learner (DLL), pretest assessment score, and the percentage of home activity feedback sheets returned by the child's family. Level 2 variables were those shared by children within the same classroom. Our level 2 variable was CLASS score for the school year. Given our specific interest in the links between home activity return rates and children's posttest assessment scores, all level 1 and 2 variables other than home activity return rate were treated as covariates in our model. We analyzed a series of four multi level models, one for each posttest score (PPVT, TERA, PALS, DSC).

Results of the multilevel analyses to predict academic skills are shown in Table 3. For all four outcome variables, we found significant associations between home activities and children's posttest performance ($\beta = .14$, $p < .001$; $\beta = .17$, $p < .01$; $\beta = .15$, $p < .001$; $\beta = .09$, $p < .05$; for the PPVT, TERA, PALS, and DSC, respectively). When families completed a higher percentage of home activities, their children had higher posttest scores. Participation in the home activities explained unique variance in child outcomes above and beyond the effects of pretest skill, age, DLL status, and classroom quality.

[2]Our level 2 grouping was classroom within a particular project year. Children enrolled in the same classroom in a given year experienced a shared environment and their data should therefore show dependency. However, a child enrolled in a particular site in project year 1 would not share experiences and unique environmental factors (teachers, peer group, etc.) with another child enrolled in the same site in a different project year. The number of level 2 units was 5, 10, 8, and 4 for project years 1 through 4, respectively.

An additional set of analyses were conducted that included an interaction term between home activity return rate and pretest score. This was done to determine whether home activity participation had a different effect on academic outcomes for children who started the year with higher vs. lower skills. For each outcome, the interaction term was nonsignificant. This suggests that all children showed similar benefits from the home activities, regardless of their pretest performance.

TABLE 2
Descriptive Statistics for Study Variables

	N[a]	Mean	*SD*
Child Level Variables			
Age in Months	321	44.81	7.00
DLL Status[b]	321	0.37	0.48
Home Activity Return	321	0.54	0.32
Pretest			
PPVT[c]	311	82.72	17.80
TERA[c,d]	203	85.06	12.44
PALS	316	14.64	16.58
DSC[f]	313	8.00	6.81
Posttest			
PPVT	311	89.29	15.08
TERA	203	89.38	14.17
PALS	316	33.02	22.86
DSC	313	15.46	8.01
Classroom Level Variables			
Classroom Quality	27	4.51	0.69

[a]The total sample size was 321. *N*s for child assessment measures vary due to missing data.[b]DLL status was coded as 1 (yes) or 0 (no). The mean of DLL status shows the average percentage of children from homes where a non-English language was spoken.
[c]Quotient-type standardized scores were used for PPVT and TERA (mean = 100, SD = 15).
[d]Sample size for TERA is smaller because some children were too young at pretest (less than 42 months) to be assigned standard scores
[e]PALS data are reported as total raw score with a possible range of 0 to 88. Eight of the nine PALS tasks were administered.
[f]DSC data are reported as raw scores with a possible range of 0 to 37.

TABLE 3

Raw Regression Coefficients, Standard Errors, and Standardized Regression Coefficients

			B	*SE*	*β*
PPVT					
	Level 1	PPVT Pretes	0.60***	0.04	0.70
		Age	-0.08	0.08	-0.04
		DLL	-1.80	1.39	-0.06
		Home Activity Return	6.70***	1.90	0.14
	Level 2	CLASS	-1.36	1.23	-0.06
TERA					
	Level 1	TERA Pretest	0.77***	0.06	0.68
		Age	-0.03	0.15	-0.01
		DLL	-0.89	1.49	-0.03
		Home Activity Return	7.35	2.45	0.17
	Level 2	CLASS	1.51	1.26	0.07
PALS					
	Level 1	PALS Pretest	1.06***	0.06	0.77
		Age	0.35**	0.12	0.11
		DLL	0.22	1.64	0.00
		Home Activity Return	10.47***	2.63	0.15
	Level 2	CLASS	5.36**	1.89	0.16
DSC					
	Level 1	DSC Pretest	0.84***	0.05	0.71
		Age	0.15**	0.05	0.13
		DLL	-0.20	0.60	-0.01
		Home Activity Return	2.21**	0.95	0.09
	Level 2	CLASS	0.84	0.48	0.07

Note: Equation n = 311, 203, 316, 313 for PPVT, TERA, PALS, and DSC, respectively. *p < 0.05; **p < 0.01; *** p < .001.

Parent Satisfaction

Reponses to the posttest parent satisfaction survey are shown in Table 4. For almost all items, the large majority of parents provided a positive evaluation. Parents felt that children learned from both the classroom and home curricula, the home activities were easy to follow and fun to do, and the home curriculum improved their own understanding of their child's learning and self-

efficacy in working with their child. Two exceptions to this pattern were found. First, reflecting the overall return rate for the home activity comment sheets, 76% of parents indicated they did all or most of the home activities. Second, the lowest ratings were given for usefulness of the coaches' in-class demonstration sessions. A full 44% of parents answered "no opinion/don't know" to this item. Not all parents were able to attend the demonstration sessions and in many cases, someone other than the parent was responsible for bringing the child to school.

TABLE 4
Parent Response to Survey Items

Item	Percentage agree or strongly agree
My child learned a lot doing the LC classroom activities	99
My child learned a lot doing the LC home activities	98
The LC home activities were fun for my child and me to do	97
I did all or most of the LC home activities that were sent home	76
The written instructions for the LC home activities were clear	95
The twice-a-month demo sessions with our classroom coach were helpful	53
LC helped me better understand how my child learns	97
LC has made me more confident about teaching my child	98

Note. n = 103 in year 2 and 61 in year 4

Qualitative analyses were conducted on a sample of comments provided by parents on the annual satisfaction surveys and weekly home activity feedback sheets. The corpus used included all surveys from project years two and four that included written comments (n = 111 out of 151 surveys returned) and a random sample of 142 feedback sheets from project year two.

A grounded case study approach (Glaser & Holton, 2004) was used to develop a means for analysis of the prevalent themes (categories of information) that resonated within the comments parents provided on the surveys and feedback sheets. Primary analysis was done by the third author and verified by the first author. Parents' verbatim responses were reviewed to develop a coding system that captured the major content addressed across both sets of data. Reponses within each code were further examined to determine the prominent themes, or specific ideas addressed in parents' comments. After joint discussion of the initial results, the themes were refined and the corpus was reviewed again. The two authors also worked together to select representative quotations to illustrate each final theme.

TABLE 5

Themes and Sub-themes from Parents' Comments

1 Mutual enjoyment	
	1A Enhanced relationships
	1B Enjoyment and pleasure in learning
2 Children's learning and motivation	
	2A Specific literacy and math skills
	2B Changes in motivation
3 Parent involvement	
	3A Self confidence
	3B Increased understanding of their child's learning
	3C Home-school connections
	3D Challenges

Based on the frequency of mention, three main themes and eight sub-themes were identified (see Table 5). *Mutual enjoyment* was the first theme. The most common response on both the home activity sheets and parent surveys was that parents and children enjoyed doing the home activities. Family members liked the content of the activities and the fact that completing the activities provided a context for sharing quality time. One parent captured this duality by saying, "LC helps my child learn but it's a fun way for my child and I to spend time as well."

Two sub-themes emerged in this area. Sub-theme 1A was *enhanced relationships*. Putting aside time to work together was seen as having positive effects on the parent-child relationship. When describing what they liked most about the home curriculum, comments included "More bonding for me and my child," "We developed a good relationship," and "It's a learning and understanding process, as well part of quality time as a family." One parent appreciated being asked to spend one-on-one time with her oldest child on a regular basis, saying "I liked that we were kind of 'forced' to do activities, just he and I. Since my daughters were born we don't really spend a lot of time just us. The activities were fun too!" Sub-theme 1B was *enjoyment and pleasure in learning*. Many comments on the activity sheets and the surveys described the learning activities as "fun." Examples include: "My child and I spent time together and he got to learn and have fun at the same time," "ERF makes learning fun," "Our family all enjoyed the homework," and "He loves it when I read to him!"

The second most frequent set of responses related to theme 2, *children's learning and motivation*. One mother said that "I have seen her vocabulary and understanding of concepts expand. She surprises me with her recognition with words, numbers, and even math. I feel she will be very comfortable and confident in kindergarten!" As illustrated in this parent's comment, two sub-themes emerged: gains in specific literacy and math skills, and general changes in children's academic motivation.

Relating to sub-theme 2A, *specific literacy and math skills*, most parents saw positive changes in their children's academic readiness, especially in their use of more sophisticated vocabulary. Parents described changes in skills such as asking and answering questions during book-reading; being able to retell or act out familiar stories; "reading" to siblings; using new vocabulary words; playing with rhyme; recognizing the alphabet; starting to spell or sound out

words; counting; identifying shapes; and measuring. Comments that comprised sub-theme 2B, *changes in motivation,* were notable. Many parents described their children's positive attitude towards learning. For example, "Her other siblings usually do their homework after school, so she [was] excited… to show her siblings that she has learned new things just like them." Another mother commented that, "[child's name] is awesome and retains information like a sponge." A third parent said that, "When the home activities were done, my child felt like she was a teacher. It made her feel important, a smart-learner. She got excited."

Many parents described their children as becoming more "interested and enthusiastic" over the course of the year; some also noticed an increase in their child's attention span. A minority of parents initially had difficulty engaging their child, e.g., "My child was not listening to me", "My child doesn't like the book," and "My child needs more practice." However, over time, comments included, "My child's behavior changed for the good," and "It has gotten better and my child wants to learn."

The final theme was *parent involvement*. This theme had four sub-themes. Sub- theme 3A related to *self confidence*. Parents commented that they felt better prepared to teach their children, e.g., "LC lets me know how I can help my child learn," "I used LC as a guide for what my child should be learning other than hat I was already teaching at home," and, "As a new parent, I didn't know how to explain what was required for kindergarten; LC helped me become a better teacher." Several parents commented specifically on the usefulness of learning new strategies for reading aloud. Sub-theme 3B addressed parents' *increased understanding of their children's learning*. The home activities gave parents a better understanding of their children's current skills and potential to learn. For example, "It helped me better understand how my child learns at the early stage before kindergarten…It showed me how much more my daughter knew." Another parent commented that doing the home activities, "Helped me see just how smart she is." Sub-theme 3C involved stronger *home-school connections*. The LC home activities reinforced what children were learning in school and parents recognized and appreciated this connection. One parent said that, "The home activities really helped my son to understand what he learned at school. All the activities were built on each other," while another parent described his/her daughter as "excited about doing [the activities] because she learned it at school." Families reported knowing more about the classroom curriculum and one parent expressed appreciation for the workshop in which parents were given an overview of the LC curriculum goals. In sub-theme 3D, parents discussed *challenges* experienced in completing the home activities. Parents identified a lack of time as the greatest obstacle to completing homework activities. One parent said "Some months [there was] too much homework on top of my busy schedule," while another said, 'I like everything except that I regretted that I don't have enough time to spend with him." Among those parents who were not native English speakers, some had difficulty reading and understanding the home activity instructions; their suggestions included providing written translations in multiple languages and/or hiring bilingual classroom coaches.

DISCUSSION

This study addresses parents' perceived experiences and children's outcomes relating to a curriculum designed to increase family involvement. The Learning Connections (LC) curriculum is unusual in having parallel classroom and home components. Parents were given weekly home

learning activities to complete with their preschool child that built upon content already introduced in school and provided a format for parents to address the same learning goals that teachers focused on in the classroom. Results indicated that the home curriculum was highly successful in engaging families and supporting children's learning. Participation rates increased over the course of the project, with high levels of family involvement attained in the final year. Parents and children enjoyed the structure and shared routine that the home activities provided. Parents saw changes in their children's early academic skills as a result of the home curriculum and this perception was validated by objective assessment data. There was a clear pattern where family participation in the home activities was associated with child language, literacy, and math skills above and beyond the predictive associations with child age, pretest skills, and classroom quality. In other words, parents made a difference; the more home activities a parent completed with their child, the greater gains the child made over the school year. This suggests that parents and other adult family members are an important resource that can be employed to enhance Head Start children's school readiness.

Why was the home curriculum successful? We suggest four possible reasons.First was the nature of the home activities: Structure and support were provided in the form of clear instructions and materials, and because the activities were short most families were to able make time in their home routines. Second, there was the close link between home and school learning. Rather than teaching new material, parents addressed content that was also covered in class. Presumably this made the parents' task easier and also allowed children to demonstrate their competencies and see that both their teachers and their parents valued similar activities. Third, the home curriculum was fun. Parents and children enjoyed the activities and the chance to spend quality one-on-one time was seen as an additional benefit. Finally, doing the activities appeared to be a self- reinforcing process. Parents saw the results of their efforts in their child's enthusiasm and progress, which likely increased parents' self-efficacy and motivation to teach their child. It is also possible that parents ascribed greater value to their teaching because it was closely aligned with the school curriculum. Parents may have started to see themselves as part of an educational team, working together with the teachers and coaches to help children reach academic goals. Unfortunately, we did not ask parents to comment on this particular issue. However, it appears that the LC home curriculum led to a situation in which families and schools enacted the exemplary home learning practices described in the seminal work of Joyce Epstein (Epstein,1995): Specifically, the school provided a regular schedule of home activities that required parents and children to discuss content addressed in class; parents were provided with support in teaching their children at home; parents were aware of the classroom curriculum; and parents understood where their child was at in terms of the learning process.

What enables and motivates family involvement? Hoover-Dempsey and Sandler (1997) suggested several factors that increase involvement including parental role constructs, parental self-efficacy, and invitations or specified requirements from teachers and/or children that parents should be involved. For families that did not already see themselves as teachers, the LC structured home activities, coaching demonstrations, and workshops provided both a clear message about the importance of home teaching and a set of strategies to use. Our results show that many parents felt increasingly efficacious. Finally, children invited parent involvement by asking or reminding their parents to do the weekly activities. The message that parental involvement was desired and expected was also communicated by teachers and coaches.

A major limitation of this study was the lack of comparative experimental conditions, such as a no-LC control, classroom-only, and home-only LC curriculum groups. In the absence of appropriate comparative groups we cannot infer a causal relationship between home activity completion and child outcomes. It is possible that the home activities produced a halo effect, stimulating some other form of parent involvement that was more directly linked with individual differences in children's growth. A strategy for isolating effects specific to the content of our home curriculum would be to provide half of the families with home literacy activities and half with home math activities, or to provide parents with home activities from only one curriculum domain, such as phonological awareness. If child outcomes are truly a function of specific parent-child activities, children should show differential progress in the content areas assigned to be taught at home.

A second limitation is our method of measuring family involvement. By using comment sheet return rates, we may have under-estimated participation for families that conducted the activity but did not submit a comment sheet. In addition, we did not have access to the thoughts of parents who did not return home activity feedback sheets, or those who did not provide written posttest survey comments. It is possible that that parents who had the most positive experiences with the home curriculum took the time to share their views. Nor do we have information concerning family involvement after children left Head Start. One might predict that involvement patterns established in preschool such as high self-efficacy, home learning routines, talking with children about what they are doing in school, and the expectation of being informed about the classroom curriculum would translate into continued involvement with homework, home-school communication, and general enrichment in the child's elementary school years. Additional research would need to be conducted to determine whether family involvement efforts like LC have long-term implications for parental behavior and children's academic achievement. Based on the strength of the results presented here, we believe that such questions deserve to be answered.

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APPENDIX A

Sample List of Yearly Home Activities

Week	Home Activity Title	LC Goal(s)
1	Reading aloud	O1, O2
2	Finding shapes	G1
3	Clapping syllables	P1
4	Quilt patterns	G2
5	Homemade family book	A5, A6, O1, W1
6	Big or small	M1
7	Rhyming poems	P2
8	Shapes that make a shape	G2, G3
9	Thick or thin	M1, G5
10	Thank you card	A5, A6, W1
11	Meal time fun	P3
12	Counting children and beds	N1
13	Acting out a story	O2
14	Cultural counting book	N2, W1
15	My beginning sound collage	A1, P3
16	My counting nature walk	N2
17	Simon says	G1
18	Love letters	A5, A6
19	Signs, signs and more signs	A2, A4
20	Alphabet sound tree	A1, A2
21	Scavenger hunt for heavy and light	M1, M2
22	Reading aloud	O1, O2
23	Measuring playdough	M3, A5
24	Volume with cups	M5
25	Rhyming puppets	P2
26	Slipper strips	N3, M3, M4
27	Syllable sort	P1, N2
28	Intro to area	M6
29	Parent survey	n/a
30	Clapping syllables	P1
31	1-,2-,3- shapes	N3, N6
32	Today’s news	A2

APPENDIX B

Sample Home Activity from the Phonological Awareness Domain

Activity Name: Meal Time Fun
Learning Goal for Your Child (P3): To notice the beginning sounds of spoken words
Materials: Foods served at a regular family meal, this sheet
(*The original sheet had an image of a plate with spaces for listing food names*)
Directions:

1. As you are cooking a family meal or just before your child starts to eat, talk with your child about the foods that he/she will eat.
2. Name the foods together. Say the beginning sound of the word for each food item with your child. For example, "Fish starts fff," or "RRR is for rice."
3. Write the names of the foods you talked about in the space below.
4. Enjoy your meal!
5. Please return completed activity and feedback form

APPENDIX C

Sample of Home Activity from the Measurement Domain

Activity Name: Slipper Strips
Learning Goals for Your Child (M3, M4):
To use an informal measuring tool (paper slippers)
To use a composite (the slipper strip) to measure items
To have fun using math
Materials: Scissors, tape, paper slipper cut-outs
(*Materials were provided to parents but are excluded here*)

Directions:

1. Cut out the paper slippers on the attached paper.
2. Ask your child to measure one family member.
3. Ask that family member to lie on the floor.
4. Show your child that he/she can measure the person's length by counting how many slippers it takes to move from the person's feet to their head.
5. If the last slipper extends past the family member's body, tell your child to cut the slipper in the appropriate place.
6. Attach the slippers together with tape to make a slipper strip.
7. Help your child count how many slippers he/she used to measure the family member.
8. Measure a large, open space such as a hallway. Help your child measure the length of the space with the slipper strip.
9. On the line below, write the number of slipper strips used.
10. Write your child's name and the family member's name on the slipper strip.
11. Discuss with your child why it took more slippers than slipper strips to measure a person and a place.
12. Please return completed activity and feedback form to your child's teacher

A. We measured _____and he/she was_____slippers long.
(Person's name)
B. We measured_____and it was_____slipper strips long.
(Place)