

# Joint storybook reading and joint writing interventions among low SES preschoolers: differential contributions to early literacy

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## Abstract

This study compared two interventions: one focusing on language and storybook reading and the other on alphabetic skills and writing. Seventy-one preschoolers aged 3–5 from a low SES township in central Israel (35 in the reading program and 36 in the writing program) participated in evaluation of the interventions. Twenty-four untreated preschoolers served as a control group. The children were tested twice, at the beginning and at the end of the school year, in: phonological awareness, word writing, letter knowledge, orthographic awareness, listening comprehension, receptive vocabulary, and general knowledge. Both programs involved games and creative activities. The writing program encouraged letter knowledge, phonological awareness, and functional writing activities. The reading program utilized 11 children's books for focusing on language and exploring major concepts raised by these books. Results indicated that children in the two literacy programs progressed significantly more than the control group on phonological awareness and orthographic awareness. However, the joint writing group significantly outperformed both the joint reading group and the control group on phonological awareness, word writing, orthographic awareness, and letter knowledge. We also found that children as young as 3–4 years gained from literacy programs as much as did older children, aged 4–5, on all the measures assessed in our program.

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## 1. Introduction

The present study examined the differential effects of major daily adult–child activities in promoting various skills related to early literacy among young children from a background of low socioeco-

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conomic status (SES). We questioned: what should daily literacy interactions with preschoolers emphasize to help equip them better for reading and writing acquisition when they start formal schooling 2 or 3 years later? This study compared the effects of two programs aiming to promote literacy among preschool children aged 3–5 from low SES community. One program focused on alphabetic skills via joint writing activities; the other dealt with general competencies via joint storybook reading and linked activities.

Poverty comprises a major environmental factor that exerts a profound adverse effect on many aspects of development in ways that are not yet completely understood (Starfield, 1992). Children from low SES communities generally attain a lower level of literacy than their peers from middle or high SES communities. Research in Israel showed that preschoolers and kindergartners from lower SES communities lag behind their counterparts on emergent literacy measures such as recognition of environmental print, phonological awareness, letter naming, word writing, word recognition, and orientation to print (Aram & Levin, 2001; Korat, Bachar, & Snapir, 2003; Levin, Korat, & Amsterdamer, 1996; Levin, Share, & Shatil, 1996). Researchers in other countries have reported similar findings regarding children who come from low SES families during the last three decades (e.g., Bowey, 1995; Clements, Reynolds, & Hickey, 2004; Dickinson & Snow, 1987; McCormick & Mason, 1986; Snow, Burns, & Griffin, 1998; Wells, 1985). The emergence of this link in various societies and across decades suggests multiple causes that appear difficult to counteract.

The field of early education has struggled to demonstrate conclusively the efficacy of early interventions as a means to combat the damaging effects of poverty on young children (Zigler, 2000). General consensus exists that literacy begins to emerge during infancy (Scarborough, 2002; Whitehurst & Lonigan, 2002). Evidence suggests continuity from early literacy in preschool to literacy achievement in school (Aram, *in press*; Aram & Levin, 2004; Levin, Ravid, & Rapoport, 2001; Shatil, Share, & Levin, 2000) and even to higher education (Cunningham & Stanovich, 1997).

A good start is likely to help children become active in literacy and develop efficient reading habits. Yet, minimal understanding exists concerning how classrooms and preschool teachers can support literacy emergence (Dickinson, 2002). During the last decade, changes occurred in researchers' and educators' vision of developmentally appropriate literacy practices for young children. Two shifts transpired: first, from a position that favored free natural exposure to literacy and resented any tendency to use formal teaching techniques, educators moved to a stance that recognizes the importance of direct teaching. Second, a shift occurred from emphasizing mainly general language abilities to paying more attention to alphabetic skills like letter recognition and phonemic awareness.

### *1.1. Promoting early literacy*

Zigler (2000) wrote in a forward to a handbook on early childhood intervention: "Now that we have a clearer picture of the general program efficacy, the major task is to identify which programs work better and how these results are achieved, as well as which components of programs are most essential to achieve maximum benefit. This latter question is critical, given the limited funding with which most intervention programs must be mounted and sustained" (p. XII). Interventionists (educational planners, policy makers, researchers, etc.) have developed numerous programs to induce teachers of young children, especially from low SES, to promote early literacy—mainly via two means: storybook reading and alphabetic skills training.

### 1.2. Storybook reading

Reading books to young children constitutes a very common adult–child early literacy activity (e.g., Sénéchal, LeFevre, Thomas, & Daley, 1998). A position paper issued by the [International Reading Association](#) and the [National Association for the Education of Young Children](#) (1998) regarding appropriate practices for promoting literacy declared: “The single most important activity for building these understandings and skills essential for reading success appears to be reading aloud to children” (p. 198).

Neuman (1999) described the many contributions of storybook reading to young children’s literacy development. Through storybook reading, she claimed, children acquire general knowledge, learn from the stories to think beyond the immediate, and learn about written languages’ rhythms and conventions. Researchers frequently link experience with shared reading to children’s language development ([McNeill & Fowler, 1999](#); [Robbins & Ehri, 1994](#); [Zevenbergen & Whitehurst, 2003](#)).

Relevant programs have aimed to induce caregivers, especially caregivers teaching in low SES communities, to read more to children and to encourage children to be more active in the process (e.g., [Karweit & Wasik, 1996](#); [Neuman, 1999](#); [Whitehurst, Arnold, et al., 1994](#)). These programs, conducted mostly with very young preschoolers aged 2–4 years, reported benefits to both children’s oral language ([Lonigan & Whitehurst, 1998](#); [Valdez-Menchaca & Whitehurst, 1992](#); [Whitehurst, Arnold, et al., 1994](#); [Whitehurst, Epstein, et al., 1994](#)) and to children’s emergent literacy skills (writing and print concepts) ([Whitehurst, Epstein, et al., 1994](#); [Whitehurst et al., 1999](#)).

In addition to day care, preschool, and kindergarten interventions, libraries have also developed programs aimed to increase storybook reading in young children. These programs are designed to connect parents and caregivers of young children with local public library services ([Fiore, 2002](#); [Meyers, 2002](#); [Oakes & Virbick, 2001](#); [Shauck, 2002](#)). In some libraries, workshops enrich the children’s experiences with books. These studies showed that following the programs, parents and children visited the libraries more and shared more books with their children ([Fiore, 2002](#)).

### 1.3. Alphabetic skills

Studies that examined the continuity in the transition from kindergarten to school have emphasized the role of phonological awareness, letter knowledge, and linguistic knowledge in kindergarten as chief predictors of decoding accuracy, reading fluency, and reading comprehension at the beginning of school (e.g., [Badian, 2001](#); [Bowey, 1995](#); [Catts, Fey, Zhang, & Tomblin, 2001](#); [Chaney, 1998](#); [Ehri, Nunes, Willows, Yaghoub-Zadeh, & Shanahan, 2001](#); [Näslund & Schneider, 1996](#)). Evidence supports the claim that these relations are already valid from preschool ([Näslund, 1990](#)). [De-Abreu and Cardoso-Martins \(1998\)](#) found that Portuguese preschool children who knew the names of letters could easily learn the letter–sound relations in words (see also [Share, 2003](#)).

Programs that focused on direct practice of alphabetic skills like phonological awareness and letter knowledge have addressed mainly kindergartners aged 5–7. Such programs demonstrated that integrating phonological awareness, alphabetic naming, and writing activities in kindergarten was very productive in low SES kindergartens ([Baker & Smith, 1999](#); [Schneider, Roth, & Ennemoser, 2000](#)) as well as in middle SES kindergartens ([Ball & Blachman, 1991](#); [Ukrainetz, Cooney, Dyer, Kysar, & Harris, 2000](#)). Kindergartners whose teachers learned to implement phonological and print awareness activities and who were explicitly taught segmentation and synthesis skills performed better than the control group on various measures of reading, spelling, and phonological sensitivity ([O’Connor, 1999](#); [Solity & Deavers, 1999](#)).

#### 1.4. Purpose of this study

We designed our study in light of the diversity in early literacy programs and the need to devise efficient early intervention programs for low SES children. Specifically, we sought more information regarding the identification of which components should be included in these interventions: which are the more fruitful components for promoting early literacy? Moreover, we hoped to investigate the optimal ages for introducing different literacy components into interventions.

Aram and Levin (2002) compared the nature maternal joint writing interactions to storybook reading interactions in terms of their relations with emergent literacy among kindergartners in a low SES population. Joint writing was examined by assessing the nature of mother–child dyadic writing interaction. Storybook reading was assessed using a storybook title recognition test (Stanovich & West, 1989). The title recognition test, a proxy measure of reading frequency, assumes that mothers who read more frequently to their children will recognize more children's storybooks (Stanovich, 1993). Word writing, word recognition, phonological awareness, and orthographic awareness comprised the measure of child's literacy. Kindergarten teachers ranked the children's verbal, graphic, and mathematical abilities. Aram and Levin's findings revealed that the nature of the writing interaction explained added variance of word writing, word recognition, and phonological awareness, after partialling out home environment measures and the nature of storybook reading. Storybook reading explained added variance of verbal ability, beyond home environment and the nature of the writing interaction. The researchers concluded that the nature of joint writing is linked to reading and writing acquisition, and that joint storybook reading is related to verbal abilities.

In the present study, we compared two different interventions related, respectively, to joint reading and to joint writing: one focusing on language and storybook reading and the other on alphabetic skills and writing. We conducted the interventions in preschools, utilizing university students of early education as the mediators. The children who participated in the interventions were from two age groups: ages 3 and 4. Our questions comprised:

1. What are the differential effects of promoting language and storybook reading versus enhancing alphabetic skills and writing?
2. Will the younger children in the programs, aged 3–4, gain as much from the literacy interventions as the older children aged 4–5? And will the greatest gains result from the same program at both age intervals?
3. Do young children (age 3–5) benefit from a writing program that includes direct phonological awareness and letter knowledge instruction?

## 2. Method

### 2.1. Participants

Participants comprised preschoolers from six preschools in the low SES township of Jaffa in central Israel. Jaffa is geographically adjacent and administratively affixed to the major city of Tel Aviv. The township's population of some 47,000 residents is ethnically diverse, comprising native and immigrant Jews, and both Christian and Moslem Arabs. According to a recent study conducted by the

Tel Aviv-Jaffa municipality (Center for Socioeconomic Research, 2000), Jaffa residents face a lack of education and health programs, a high level of violence and crime, a number of neighborhoods known for drug dealing, and a high percentage of multiproblem families who suffer from domestic violence, economic distress, poor health, single parenthood, etc. The unemployment rate is higher than the general rate in Israel, and 30.1% of Jaffa's residents regularly receive local welfare services, in comparison with 16.3% in Tel Aviv. The rate of persons per room in Jaffa (1.53) surpasses that of Tel Aviv (0.87). The rate of single mothers in Jaffa (17.7%) is higher than the general rate in Israel (10.0%).

We randomly selected six preschools to participate in the present study, out of the total of nine preschools in Jaffa. Four preschools participated in an intervention program, and two preschools served as a control group. The educational supervisor asked the teachers of these preschools to participate in the study and all of them agreed. These preschools were all part of the national education system, used the same curriculum, and were supervised by the same supervisor. All six preschool teachers were female, had at least 4 years of practical experience, had finished Teacher College, and held a teaching diploma.

All of the children enrolled in four randomly selected preschools participated in two intervention programs: two preschools in the reading program, and two preschools in the writing program. Thus, a total of 120 children, 60 in each program, around 30 in each preschool, received one of the two interventions.

In the present study, to evaluate the effectiveness of these two intervention programs, we randomly sampled 76 children (38 in each intervention group) from the four intervention preschools. In addition, we sampled 24 children from two other untreated preschools to serve as a control group. We administered pretests to the 76 children sampled from the intervention preschools (38 children in each of the two intervention programs), but only 71 of these children completed the posttest measures (36 children in the joint writing program and 35 in joint reading). Four children moved with their families out of town and left their preschools, and one child was hospitalized at the time of the posttest. All 24 children in the control group completed measures at both the pretest and posttest intervals.

The children in the intervention and control groups included two age groups: (a) children who had their fourth birthday during the school year (3–4 years old), for whom that year comprised their first in the early education system; and (b) children who had their fifth birthday during the school year (4–5 years old), for whom that year comprised their second in the education system. This is a typical age combination in Israeli preschools. The mean age in months at the pretest was  $M = 46.05$ ,  $S.D. = 4.78$  for the joint writing group (with 18 children younger than 47 months and 18 older than 47 months);  $M = 45.19$ ,  $S.D. = 6.51$  for the joint reading group (22 younger than 47 months and 13 older than 47 months); and  $M = 45.48$ ,  $S.D. = 5.90$  for the control group (14 younger than 47 months and 10 older than 47 months). The boy:girl ratio in the preschools was 18:18 for the joint writing group, 17:18 for the joint reading group, and 11:13 for the control group.

Criteria for inclusion in the evaluation study comprised sufficient fluency in the Hebrew language and teacher's assessment that the child had no special needs. We only sampled native Hebrew speakers (83.3%) and immigrants from the former Soviet Union who spoke Hebrew but for whom Russian was their mother tongue (16.7%). As seen below, we included Arabic-speaking children (who comprised about 3% of the preschooler population) in the interventions along the year; however, we did not include them in the evaluation study because the student-mediators did not speak Arabic, and the children, especially at the beginning of the year, could not communicate in Hebrew.

## 2.2. *Intervention programs*

We initiated the two programs in early November, 2 months after the school year began, to provide the children with time to adapt to their preschool context, teacher, and peers. The two programs were concrete, realistic, and maintained challenging goals (see Gersten & Brengelman, 1996; Marks & Gersten, 1998). Sessions followed a cumulative, developmental curricular progression (for examples of two successive sessions in each intervention program, see Appendix A).

### 2.2.1. *Language for communication*

Both intervention programs used Hebrew for communication, and the children's books and writing experiences were all in Hebrew. We decided to include all the children from the four intervention preschools in the literacy programs regardless of their mother tongue. We assumed that Arabic-speaking and Russian-speaking children who were less exposed to Hebrew, including Hebrew literature, in their homes would benefit from participating in the literacy interventions, in light of evidence supporting the transfer of early literacy awareness from English to Spanish and vice versa (Yaden et al., 2000).

### 2.2.2. *Small tutoring groups*

In each program, one student-mediator worked with small groups of four to six children for 20- to 30-min sessions twice weekly at the preschool. In all, each child participated in approximately 66 sessions. Other early interventions demonstrated the effectiveness of small-group tutoring (Lauren & Allen, 1999). The teacher and the student-mediator together devised the groups' composition based mainly on the teacher's impression of the children's emergent literacy and on the results of the literacy pretests (see below). The small groups were moderately stable. Children moved group during the year if the student-mediator found that a child was not getting along with his/her group or if a child was way ahead or behind his/her group. If children missed school and did not participate in a group session, they were included in another group in order to make up for the missed session.

### 2.2.3. *Student-mediator training and supervision*

Teachers' intensive training constitutes an important component in early interventions (Lauren & Allen, 1999). During the school year, the four university students underwent training at Tel Aviv University for their role as student-mediators. Each pair of student-mediators working on the same program (either joint reading or joint writing) attended separate 1-h weekly meetings with the coordinator. In these meetings, the student-mediators shared their experiences from the previous week and learned the contents and goals of the coming week's sessions, including the connections to the earlier sessions. During the weekly supervision meetings, the students received printed one-page guidelines for each of the upcoming week's sessions, as well as the necessary materials (games, books, stickers, etc.). Students also talked about the materials they would have to prepare for these sessions (printing certain words, clipping words from newspapers, bringing costumes for a show, etc.) and discussed possible difficulties. Research has shown students to be useful in promoting kindergartners' literacy (Ukrainetz et al., 2000). The student-mediators entered the preschools specifically for the purpose of mediating this intervention and were available to meet consistently with each child twice weekly.



#### 2.2.4. *Staff coordination*

The interventions' coordinator visited each preschool once every 2 weeks, for about an hour, in order to provide teachers and student-mediators with frequent opportunities to discuss their negative and positive reactions to the early literacy practices (see Baker & Smith, 1999). The teachers and the student-mediators also attended monthly meetings in their preschools with the head coordinator. In these meetings, the teachers, students, and the coordinators had an opportunity to discuss specific issues that arose during that month. During the meetings, the teachers reported their impressions about the children's progress, and the coordinators described in general the next aims for the coming month. These meetings aimed to enhance teachers' awareness about the program's ongoing goals and to encourage teachers to integrate literacy-related experiences into their activities with their entire preschool class.

#### 2.2.5. *Parental involvement*

The programs enlisted parents' involvement via two special events during the year. One, a month after the program's onset and one toward the end of the year. In the joint reading program, the two parent-child activities included a storyteller. For example, at the first event, the children were involved with the storyteller while the first author separately presented the program to the parents, describing the contribution of storybook reading and explicating how to help children become more active in joint storybook reading. In the joint writing program, the two parent-child events included writing activities. For example, at the first event, the teacher and the student-mediator involved the children in writing while the first author separately presented the program to the parents, explicating the development of early writing and encouraging parents to take advantage of opportunities for joint writing.

#### 2.2.6. *Literacy area*

To enhance program's effectiveness, the teacher and student-mediator assigned a section of the preschool classroom to literacy. This area included a board on which to hang children's products, a table for books or games, and relevant materials. We donated a copy of each of the 11 children's books included in the joint reading program to the two preschools that participated in that program. Likewise, to the two preschools that participated in the joint writing program, we donated six games for practicing rhyming, alliteration, and letter knowledge (e.g., a letter-picture matching game, for example, connecting the letter T to a picture of a table; a rhyming pictures matching game, for example, finding the picture of an item that rhymes with the pictured balloon).

### 2.3. *Promoting alphabetic skills: joint writing program*

The writing program involved games and creative activities that encouraged letter knowledge, phonological awareness, and functional writing activities with children aged 3–5 (for examples, see Appendix A). Research has indicated that the combination of phonological awareness with letter knowledge training surpasses separate training in these competencies for at-risk kindergartners (Schneider et al., 2000). To create a context linking alphabetic knowledge with writing (Wasik, 2001), we introduced all of the joint writing activities within a developmentally appropriate environment that began with the familiar and utilized potentially enjoyable games. Each session contained diverse activities targeting the various competencies. Children were first taught to recognize their written name and the written names of their friends (Adams, 1991; Share & Stanovich, 1995). Gradually, they were taught word segmentation, letter-name

and letter–sound correspondence, and merging skills using mostly the children’s names and the names of their friends as words for practice. Children practiced letter–name and letter–sound correspondence by matching the first letter of a name to a photograph of the child and then naming the letter, by merging magnetized letters to create the names of the children in the group, by searching for words that represent objects in a box that begin with the same sound as their names, and so on. Through such games, we utilized explicit teaching and practice of the alphabet and phonological awareness, with the hope that the clear benefits of such programs for older children (Solity, 1996; Solity & Deavers, 1999) would emerge for the younger preschoolers as well.

Due to younger children’s possible difficulties in writing with a pencil, especially at the beginning of the year, we encouraged all the children in the program to actively practice writing and forming letter shapes in diverse ways: using seals, stickers, magnetized letters, newspaper cuttings, pencils, crayons, etc. The demands from the children regarding letter shapes and spelling were developmentally appropriate, that is, we accepted children’s idiosyncratic or immature written products. We encouraged children to practice writing even when they printed numerous letters unrecognizably and employed invented spelling in their writing.

In the joint writing program, children learned to recognize that a spoken word consists of smaller components such as syllables and sub-syllables and that these units can be manipulated (Lombardino, Bedford, Fortier, Carter, & Brandi, 1997). The student-mediators guided the children to break the words into sub-syllables and later on into phonemic segments and then to select the alphabetic symbol that corresponds to each sound segment. Children played games such as accompanying segmentation of a name into its syllables with the use of hand clapping. Toward the end of the year, with the help of the student-mediators, the children practiced functional writing and prepared a phonebook with the names of the children in their preschool and their telephone numbers.

#### *2.4. Promoting general competencies: joint reading program*

The reading program utilized 11 children’s books. Experts on children’s literature recommended these books as high-quality children’s literature. Each book served as the basis for a unit of about six successive sessions that dealt with various ideas raised by that particular book (see Appendix A). The subjects discussed were developmentally appropriate and close to the children’s world (e.g., family, fears, friends, animals). In the first session of the unit, the student-mediator introduced the book to the children by its name and the names of the author and illustrator. Children were encouraged to predict alternative ideas from the book’s illustrations and name (Neuman, 1999). In each session of the unit, the student-mediators read the book aloud to the children twice, once at the beginning and once at the end of the meeting. During the sessions, the student-mediators discussed central concepts and notions raised in the books via games (like cards and matching activities), creative activities (like drawing and clay), and drama activities. Children were encouraged during the meetings to share their own experiences. In the last session of the unit on each book, prior to moving on to the next book, the student-mediator encouraged the children to tell the story by themselves as a group looking at the pictures. For example, in one session while reading the Hebrew translation of the book: *“Where the Wild Things Are”* by Maurice Sendak, children discussed the concept of punishments, why parents punish children, if they had ever been punished, for what reason, what punishment they disliked the most, etc. Another session on Sendak’s book focused on fears; children talked about their fears, played with a “magic box that holds all our fears”, and “put” their fears in that box. In another session, the children also dramatized the “wild land” and made masks for wild creatures.



The student-mediators invited and encouraged the children to be very active before, during, and after the storytelling. The student-mediators praised and encouraged the children, asked open-ended questions, and expanded on what the children said (Whitehurst & Lonigan, 1998). To expand children's vocabulary, student-mediators introduced words from the stories and discussed them broadly (Robbins & Ehri, 1994). Toward the end of the year, activities included sorting and reorganizing the books in the preschool library by their main character, subject, or other categorizations.

## 2.5. Literacy assessment measures

In line with our conceptualization of children's early literacy development as a multifaceted domain, we selected the following tasks as pretest and posttest measures to assess a wide range of skills:

1. *Phonological awareness.* Two tasks developed for the present study served as measures of *phonological awareness*: one referring to alliteration and the other to rhymes. Each included 10 two-syllable word pairs. Evidence has suggested that sensitivity to rhyme and alliteration is a relatively early development that may emerge among 3- to 5-year-old children (Goswami & Bryant, 1990). On the alliteration task, we asked children if the first syllable of a word resembled or differed from the first syllable of its paired word. On the rhyming task, we asked the same question with reference to word pairs' final syllables. Prior to testing, the experimenter presented two sample pairs and provided corrective feedback with explanation. The mean correct answers across the two-tasks served as the total *phonological awareness* score.
2. *Word writing.* The child wrote two pairs of words. The two words in each pair differed in their phonological length but did not differ clearly in the size of their referents. The words were: *gezer* – *melafefon* 'carrot-cucumber' and *dag-tarnegol* 'fish-rooster'. We scored each written word on a writing scale developed by Levin and Bus (2003) for children younger than 4–5 years. The scale comprised three sequential general schemes: graphic, writing-like, and symbolic. We classified each written product into one of the schemes and scored it accordingly. The graphic scheme reflected the development of graphic control ranging from scribbles (0) to good forms (1). The writing-like scheme scored 2. The symbolic writing scheme ranged from using numbers or random letters (3) to one conventional letter (4), two conventional letters (5), or mostly conventional spelling (6). The mean score of the four words served as the *word writing* score.
3. *Letter name knowledge.* We asked the child to name eight printed letters that were presented on separate cards and printed in large print (200 Times New Roman). The Hebrew alphabet includes 27 letters. The eight letters chosen were found to be among the easiest to recognize for children in the 3–5 year age range (Levin, Patel, Margalit, & Barad, 2002). The sum of correctly named letters served as the *letter name knowledge* score. To deal with possible high standard deviations, we used Tukey's (1977) suggestion and reduced the variables' range. We scored the variable on a narrower scale: no letter recognition (1), one to two recognitions (2), or more than three recognitions (3).
4. *Orthographic awareness.* We adapted to Hebrew a test developed by Olson, Kliegl, Davidson, and Foltz (1985). The test included 10 pairs of graphic items comprising one printed word and one non-word that included a mixture of Latin and Hebrew letters, numerals, or illegal repetition of letters (for example, the pair, tttttt, which comprises the word *shalom* 'peace/hello' and a repetition of the letter 't'). We asked children to select the printed word. The score on orthographic awareness consisted of the sum of items correctly selected.

5. *Listening comprehension.* The children listened twice to a short story (88 words) about a boy and his dog (taken from [Shatil et al., 2000](#)). Seven informative questions followed the story. We scored each of the child's seven answers as correct or incorrect, and the sum of the correct answers served as the *listening comprehension* score.
6. *Receptive vocabulary.* We examined children's receptive vocabulary using the Peabody Picture Vocabulary Test (PPVT). The child must select one picture out of four, depicting a spoken word. We used [Solberg and Nevo's \(1979\)](#) translation to a Hebrew items set. Inasmuch as only preliminary Hebrew norms were available for ages 5–13, and our sample was younger, we used the raw scores. Each correct response added one point to the *receptive vocabulary* score.
7. *General knowledge.* We used the first 14 questions from the general knowledge subscale of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) adapted to Hebrew ([Liblich, 1979](#)). According to standardized procedures, each item could be scored 0 or 1, yielding a maximal score of 14. We used the raw scores because the norms for the Hebrew adaptation begin at age 4 and our sample included younger children. The sum of correct responses served as the *general knowledge* score.

## 2.6. Procedure

We tested the intervention group children at two intervals: pretest at the beginning of the school year (October), and posttest at the year's end (June). The measures included tests of phonological awareness, word writing, letter naming, orthographic awareness, listening comprehension, vocabulary (PPVT), and general knowledge (WPPSI subscale). We tested the control group ( $n=24$ ) at the same two intervals but only on part of the battery (phonological awareness, word writing, orthographic awareness, and listening comprehension) due to a shortage in financial resources. Thus, the control group did not complete measures of letter naming, vocabulary, or general knowledge. Four master's degree students assessed all the children on all the tasks individually in a quiet room inside the preschools during three sessions (approximately 20 min per session). The same student administered all the tests for a given child. The tasks were administered in a counterbalanced order.

## 3. Results

The results are presented in three parts. First, we present the description of children's early literacy achievements (pretest and posttest) and the correlations among them. Second, we display the two treatments' effects by comparing the progress of the children in the writing program, the reading program, and the control group, and then we compare the gains obtained by the two age groups (3–4 and 4–5 year olds). Finally, we compare the literacy achievements of the younger intervention participants at the posttest interval (June 2002) with those of the older participants at the pretest interval (November 2001). This analysis may indicate if the younger children's starting point prior to their second year of preschool surpassed that of their older cohort, due to participation in our early literacy programs.

### 3.1. Literacy achievements: pretest versus posttest

[Table 1](#) presents the ranges, means, standard deviations, and reliabilities (Cronbach  $\alpha$ ) of all the pretest and posttest measures for the two intervention groups and the control group. Results indicate that our

Table 1  
Child's literacy measures at the pretest and posttest intervals: means, standard deviations, ranges in raw scores, and reliabilities

Variable	Joint writing				Joint reading				Control ( <i>N</i> = 24)				$\alpha$
	Minimum	Maximum	<i>M</i>	S.D.	Minimum	Maximum	<i>M</i>	S.D.	Minimum	Maximum	<i>M</i>	S.D.	
Pretest <sup>a</sup>													
Phonological awareness	4	19	10.39	2.72	6	17	11.00	2.54	6	19	11.54	3.59	0.42
Word writing	0	2	0.83	0.58	0	2	0.81	0.68	0	2	0.57	0.50	0.94
Letter knowledge	1	3	1.41	0.66	1	3	1.57	0.69					0.70
Orthographic awareness	1	10	5.36	1.98	2	10	5.60	2.25	1	10	5.00	2.18	0.50
Listening comprehension	1	7	4.12	1.89	1	7	5.00	1.71	2	7	4.46	1.59	0.59
Receptive vocabulary: PPVT	10	45	27.88	8.21	18	43	32.23	6.90					0.70
General knowledge: WPPSI	3	12	7.56	2.58	2	12	7.11	3.11					0.77
Posttest <sup>b</sup>													
Phonological awareness	9	20	16.06	2.61	6	20	13.34	3.77	6	19	11.91	4.07	0.76
Word writing	0	5	2.13	1.64	0	2	1.01	0.75	0	2	1.09	0.70	0.96
Letter knowledge	2	3	2.89	0.32	1	3	1.69	0.83					0.87
Orthographic awareness	2	10	7.81	2.05	1	10	6.69	2.46	2	10	4.41	2.35	0.74
Listening comprehension	2	7	5.75	1.32	2	7	5.74	1.70	2	7	6.29	1.23	0.66
Receptive vocabulary: PPVT	18	44	33.92	6.21	20	49	38.83	5.72					0.84
General knowledge: WPPSI	5	13	10.14	2.03	2	13	9.77	2.85					0.76

<sup>a</sup> Joint writing (*N* = 38); joint reading (*N* = 38).

<sup>b</sup> Joint writing (*N* = 36); joint reading (*N* = 35).

Table 2

Correlations between literacy measures at the pretest interval ( $N = 76$ )

	Phonological awareness	Word writing	Letter knowledge	Orthographic awareness	Listening comprehension	Receptive vocabulary (PPVT)
Phonological awareness	—					
Word writing	0.13	—				
Letter knowledge	0.13	0.20	—			
Orthographic awareness	0.05	0.24*	0.12	—		
Listening comprehension	0.26*	0.24*	0.17	0.36**	—	
Receptive vocabulary (PPVT)	0.28*	0.53***	0.31**	0.24*	0.53***	—
General knowledge (WPPSI)	0.32**	0.37***	0.43***	0.21	0.48***	0.58***

\*  $p < 0.05$ .\*\*  $p < 0.01$ .\*\*\*  $p < 0.001$ .

sample exhibited sufficient variance in all the emergent literacy measures at the pretest and the posttest intervals. In phonological awareness and orthographic awareness, children could answer by guessing, and pretest outcomes indicate that children did guess and performed around the chance level. However, posttest outcomes reveal mean performance above the chance level. The pretest descriptive data indicate that the intervention groups were similar to the control group.

Low reliability emerged between the items of phonological awareness and orthographic awareness in the pretest, mainly due to guessing; yet, their posttest reliability was sufficient. Due to their low reliability at the pretest interval, the following analyses regarding these two variables will include only the posttest data.

Table 2 shows the intercorrelations among literacy measures at the pretest interval. The two general measures—receptive vocabulary (PPVT) and general knowledge (WPPSI)—each correlated significantly with all of the other early literacy basic skills.

The intercorrelations among literacy measures at the posttest interval, presented in Table 3, reveal almost across-the-board significant correlations. Phonological awareness and word writing correlated

Table 3

Correlations between literacy measures at the posttest interval ( $N = 71$ )

	Phonological awareness	Word writing	Letter knowledge	Orthographic awareness	Listening comprehension	Receptive vocabulary (PPVT)
Phonological awareness	—					
Word writing	0.46***	—				
Letter knowledge	0.51***	0.49***	—			
Orthographic awareness	0.43***	0.44***	0.47***	—		
Listening comprehension	0.50***	0.33**	0.13	0.28*	—	
Receptive vocabulary (PPVT)	0.26*	0.33**	−0.15	0.13	0.49***	—
General knowledge (WPPSI)	0.54***	0.43***	0.25*	0.17	0.59***	0.58***

\*  $p < 0.05$ .\*\*  $p < 0.01$ .\*\*\*  $p < 0.001$ .

significantly with all the other early literacy measures. The posttest results (Table 3) evidence more significant intercorrelations than do the pretest results (Table 2).

### 3.2. Performance progress: comparing the three conditions and the two age groups

To determine the differential effects of the two programs on the measures of children's literacy, we compared the children's progress in the joint writing program, the joint reading program, and the control group. To compare the progress of the two age groups (3–4 year olds versus 4–5 year olds), we divided the sample into two age groups: children who were 47 months or younger ( $n = 40$ ) and children older than 47 months ( $n = 31$ ) in November, at the beginning of the literacy programs. The younger group was beginning their first academic year in the preschool, whereas the older group was entering their second year. For word writing and listening comprehension, we conducted the following three-way ANOVAs: 2 (time: pretest/posttest)  $\times$  3 (program: joint reading/joint writing/control)  $\times$  2 (age:  $\leq 47$  months/ $>47$  months in November). For letter knowledge, receptive vocabulary (PPVT), and general knowledge (WPPSI), we had data available only for the two intervention groups and not for the control group. Therefore, we conducted the following three-way ANOVAs: 2 (time: pretest/posttest)  $\times$  2 (program: joint reading/joint writing)  $\times$  2 (age:  $\leq 47$  months/ $>47$  months in November). Due to the low pretest reliability of the phonological awareness and orthographic awareness measures, we conducted two-way ANOVAs, using posttest scores, for these two measures: 3 (program: joint reading/joint writing/control)  $\times$  2 (age:  $\leq 47$  months/ $>47$  months in November).

Table 4 presents the main effects of time and their interactions with program and with age for word writing, letter knowledge, listening comprehension, receptive vocabulary, and general knowledge. The highly significant main effects of time and its large effect sizes show that all the children, regardless of the program in which they participated or their age, developed from the pretest at the beginning of the year (November) to the posttest at the end of the year (June) in the assessed measures. Yet, interactions emerged between time and program for word writing and letter knowledge.

Table 4

Three-way ANOVAs: comparing growth in literacy across time, programs, and ages

Variables	ANOVA								
	Time			Time $\times$ program			Time $\times$ age		
	d.f.	<i>F</i>	$\eta_p^2$	d.f.	<i>F</i>	$\eta_p^2$	d.f.	<i>F</i>	$\eta_p^2$
Word writing	(1, 89)	33.74***	0.27	(2, 89)	9.20***	0.17	(1, 89)	0.26	0.00
Letter knowledge <sup>a</sup>	(1, 67)	66.30***	0.50	(1, 67)	35.21***	0.35	(1, 67)	0.05	0.00
Listening comprehension	(1, 89)	58.20***	0.40	(2, 89)	1.92	0.04	(1, 89)	0.45	0.01
Receptive vocabulary <sup>a</sup>	(1, 67)	98.28***	0.60	(1, 67)	0.60	0.01	(1, 67)	7.28**	0.10
General knowledge <sup>a</sup>	(1, 67)	102.28***	0.61	(1, 67)	1.55	0.02	(1, 67)	0.27	0.00

Note that the *F* values of program, age, and program  $\times$  age are not presented because these scores represent the total differences beyond time (means of pre and post) and therefore are not interesting when comparing growth in literacy. Moreover, due to its obvious nature, all the *F* values of age are significant, as older children generally performed higher than younger children on literacy measures. We do not present the interactions between time, age, and program because none reached significance.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

<sup>a</sup> The control group was not assessed on these measures, so we compared only the two interventions.

A post-hoc Bonferroni test revealed the source of these interactions. On word writing, only the joint writing program group progressed significantly from pretest to posttest ( $p = 0.001$ ). The gain made by this group surpassed that of the joint reading and the control groups. The effect size of time was the lowest compared to the other measures ( $\eta_p^2 = 0.27$ ); yet, the interaction's effect size ( $\eta_p^2 = 0.17$ ) shows that the gain was higher in the joint writing group. On letter knowledge, without data for the control group, we compared only the two programs. The joint writing group showed significant progress ( $p = 0.001$ ), whereas the joint reading group did not. Note the large effect size of the interaction ( $\eta_p^2 = 0.35$ ).

The ANOVAs for the three groups' posttest scores on phonological awareness and orthographic awareness revealed only a main effect of program for both dependent variables. For the ANOVA examining phonological awareness ( $F(2, 89) = 11.27, p = 0.000, \eta_p^2 = 0.20$ ), a post-hoc Bonferroni test revealed the source of the differences. The writing group performed significantly higher than both the reading group ( $p = 0.003$ ), and the control ( $p = 0.000$ ). For the ANOVA examining orthographic awareness ( $F(2, 89) = 17.29, p = 0.000, \eta_p^2 = 0.28$ ), a post-hoc Bonferroni test revealed the source of the differences. The two intervention groups (reading and writing) performed significantly higher than did the control group  $p = 0.001$  and  $p = 0.000$ , respectively. Recall that the pretest phonological awareness and orthographic awareness scores were at about chance level. On the posttest assessment, neither significant age differences nor significant interactions between age and program emerged for either measure. The younger and the older children in the two programs performed at a similar level on these measures.

Table 4 also shows only one interaction with age, an interaction between time and age for receptive vocabulary (PPVT). A post-hoc Bonferroni test revealed the source of this interaction. The two age groups developed throughout the programs, but the younger group made significantly greater progress on this measure in comparison with the older group ( $p = 0.001$ ).

In sum, the two literacy programs significantly promoted the children's orthographic awareness when compared to the control group's progress; however, the joint writing program promoted children's word writing more than did the other two groups (the joint reading program and the control). On other alphabetic skills (phonological awareness and orthographic awareness), the children in the joint writing program also outperformed their peers in the joint reading program and in the control group at the posttests (note that the scores of the three groups were similar at the pretest). On the more general competencies, no differences emerged between the groups' progress: on listening comprehension, the two intervention groups as well as the control group progressed significantly, to a similar extent, from pretest to posttest. On receptive vocabulary (PPVT) and general knowledge (WPPSI), we had no data from the control group, but the two intervention groups progressed significantly during the year, to a similar extent. As to age differences, generally the younger and the older children progressed to the same extent with one exception. In receptive vocabulary (PPVT), the younger group progressed more than the older group.

### 3.3. Will the younger children begin preschool next year more advanced?

Using the aforementioned method for dividing the intervention groups into two groups (i.e., above/below 47 months in November), we compared the younger children's end-of-year, post-intervention literacy achievements (June 2002) with the older children's initial literacy achievements before participation in the literacy programs (November 2001). In doing so, we compared a group of preschoolers who had already participated in the programs to a group of children from the same preschools that were, at the time of testing, on average 4 months older and had not yet participated in such programs. We assumed that this analysis would provide information on the programs' efficacy.



Table 5

Comparing younger children's posttests to older children's pretests

Variable	Joint reading <i>M</i> (S.D.), <i>N</i> = 35		Joint writing, <i>M</i> (S.D.), <i>N</i> = 36		ANOVA			
	Younger ( <i>N</i> = 22)	Older ( <i>N</i> = 15)	Younger ( <i>N</i> = 18)	Older ( <i>N</i> = 16)	Age (1, 67)		Age × program (1, 67)	
					<i>F</i>	$\eta_p^2$	<i>F</i>	$\eta_p^2$
Phonological awareness	12.05 (3.44)	11.53 (3.01)	15.67 (3.09)	10.89 (2.42)	12.93**	0.16	8.44**	0.11
Word writing	0.70 (0.68)	1.44 (0.49)	1.78 (1.73)	1.01 (0.60)	0.00	0.00	9.24**	0.12
Letter knowledge	1.45 (0.67)	1.75 (0.87)	2.89 (0.32)	1.56 (0.78)	9.90**	0.13	24.39***	0.27
Orthographic awareness	5.90 (2.22)	6.62 (2.96)	7.39 (2.17)	5.50 (2.09)	1.10	0.02	5.31*	0.07
Listening comprehension	5.45 (1.82)	5.50 (1.62)	5.56 (1.42)	4.22 (1.77)	2.45	0.04	2.81	0.04
Receptive vocabulary (PPVT)	37.50 (5.54)	35.38 (6.34)	34.22 (6.57)	29.77 (6.96)	4.60*	0.06	0.58	0.01
General knowledge (WPPSI)	8.91 (3.16)	8.33 (2.50)	10.00 (1.91)	8.28 (2.44)	3.29	0.05	0.82	0.01

Note: In November, younger children were  $\leq 47$  months old and older children were  $> 47$  months old. The posttest was in the following June.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

\*\*\*  $p < 0.001$ .

For phonological awareness, word writing, letter knowledge, orthographic awareness, listening comprehension, receptive vocabulary (PPVT), and general knowledge (WPPSI), we performed two-way ANOVAs: 2 (age group: younger posttest/older pretest)  $\times$  2 (program: joint reading/joint writing). Although we did not include phonological awareness and orthographic awareness pretest scores in the previous analysis due to a low reliability across the whole group (younger and older children), we included the pretest scores of the *older* children on phonological awareness and orthographic awareness in the present analysis, since the reliability of these tests reached an acceptable level ( $\alpha = 0.60$  and  $\alpha = 0.66$ , respectively.) Table 5 shows the significant main effects of age for phonological awareness, letter knowledge, and receptive vocabulary (PPVT), indicating that the younger children scored significantly higher after the intervention compared to their older peers' performance prior to the program. The results for general knowledge (WPPSI) were in the same direction, though only marginal ( $p = 0.08$ ). Yet, Table 5 also shows significant interactions between age and program for phonological awareness, word writing, letter knowledge, and orthographic awareness. Post-hoc Bonferroni tests revealed the source of each of these interactions. On each of these measures in the joint writing program, the younger children (after the program) outscored their peers (before the program) who were yet 4 months older. In the joint writing program, the younger children (after the program) outscored their peers (before the program) who were yet 4 months older on phonological awareness ( $p = 0.001$ ), word writing ( $p = 0.01$ ), letter knowledge ( $p = 0.001$ ), and orthographic awareness ( $p = 0.05$ ). On each of these measures in the joint reading group, when tested after the program, the younger children reached the level their older peers were at before the program despite the 4-month age gap. On listening comprehension, in both the writing and reading groups, the younger children reached the level of their older peers (before the program). The results showed that in June, the literacy program graduates had at least reached the knowledge level of their pre-intervention older peers, despite the fact that these

younger children were, on average, 4 months younger. All this demonstrates the fruitfulness of the programs.

#### 4. Discussion

The present study examined the effects of two programs aiming to promote early literacy among young children (ages 3–5) from low SES families. The two programs emphasized different aspects of literacy: one program focused on alphabetic skills and joint writing and the other on language and joint storybook reading. Results indicated that children in the two literacy programs progressed significantly more than the control group on orthographic awareness. However, the joint writing group significantly outperformed both the joint reading group and the control group on phonological awareness, word writing, orthographic awareness, and letter knowledge. We also found that children as young as 3–4 years gained from literacy programs as much as did older children aged 4–5 on all the measures assessed in our program. The younger children even gained significantly more than the older children on receptive vocabulary (PPVT). Interestingly, the younger children in our programs will begin the next academic year from a more advanced position than their older peers began the previous year, and this particularly holds true for the children in the joint writing program.

##### 4.1. *Joint writing versus joint reading early literacy programs*

In contrast to the wide agreement on the prominent role of joint storybook reading in promoting literacy, we found that another activity—joint writing—was even more fruitful in enhancing the basic literacy skills immanent to the acquisition of reading and writing. Beyond promoting early basic alphabetic skills, the joint writing activities in our study also promoted more general literacy aspects like vocabulary, general knowledge, and listening comprehension.

One could have suggested that the activities in the writing intervention were more engaging than those in the storybook reading intervention, and were therefore more effective in promoting children's early literacy skills. We want to clarify this point and assert that children were physically and mentally engaged in both programs. They were involved in different activities however. For example, in the storybook reading program when told about a child who built a car with his father, children discussed transportation and sorted pictures of vehicles according to "where they move" (e.g., sea, sky, road), or when being read a story about a child who is afraid of an imaginary monster, children shared their fears, drew a "scary monster" and told its story. In the writing program, by contrast, children went around the preschool and collected objects whose names began with a specific letter or they sorted the photographs of their friends according to final sound of the name.

Our findings are in line with [Aram & Levin's \(2002\)](#) results that showed that the volume of joint storybook reading at home, assessed by storybook title recognition ([Stanovich & West, 1989](#)), predicted early literacy (word reading and writing, phonological awareness, orthographic awareness, and language ability) beyond home environment measures. Yet, the only measure that joint mother–child storybook reading predicted beyond home environment and joint mother–child writing was language ability. On the other hand, in that study, the nature of mother–child joint writing predicted word writing and reading as well as phonological and orthographic awareness beyond home environment measures and joint reading.

The relative advantages of the writing program in the present study deserve explanation. When studying parental storybook reading, researchers have concluded its direct influence on pre-readers' oral vocabulary development but not on their acquisition of early alphabetic skills (Evans, Shaw, & Bell, 2000; Frijters, Barron, & Brunello, 2000). Joint writing activities, we claim, render an influence on both written language knowledge as well as oral vocabulary development. Writing constitutes a multidimensional activity that includes meaning-focused and language-focused processes. These processes encompass contemplating the meaning to be conveyed, composing the text, and respecting the linguistic register and genre elements. Writing also includes code-focused processes consisting of spelling words, leaving spaces between them, and using punctuation marks. In the joint writing intervention group, we focused on phonology, letter knowledge, and the grapho-phonemic code as well as the context of writing and its meaning in everyday life. These activities together promote different aspects of literacy including general aspects like language and specific aspects like word writing.

#### *4.2. Which skills and competencies should be promoted at what age?*

In this study, we found that children as young as 3 years old benefited significantly from the literacy programs in preschool. Most programs that have targeted this age group focused on general language skills and highlighted the benefit of joint reading programs for this age group (e.g., Whitehurst & Lonigan, 1998, 2002). Our findings for the joint reading program support this stance. Yet, we found that promotion of specific alphabetic skills, like phonological awareness and letter knowledge via joint writing activities, is even more fruitful at this young age. Such an intervention emerged as effective not only for phonological awareness, writing, and orthographic awareness but also for the more general competencies of language, general knowledge, and listening comprehension. These findings hold particular implications for the young, low SES population. Evidence suggests that children who start school behind their counterparts on alphabetic skills are likely to stay behind, especially if from low SES (Whitehurst & Lonigan, 2002). We uphold that literacy programs incorporating writing activities may potentially promote these alphabetic skills for preschoolers as young as 3 years of age, and may modify the trajectory of their school success a few years later.

Early literacy interventions for preschoolers usually focus on exposure to print or to storybook reading and refrain from mediating phonological awareness, letter knowledge, and grapho-phonemic skills (e.g., Karweit & Wasik, 1996; Neuman, 1999; Whitehurst, Arnold, et al., 1994). The reason might be that educators view activities oriented toward alphabetic skills as inappropriate for children in the age range of 3–5 years. The importance of sensitivity and adjustment to children's level of development has been demonstrated consistently in studies of language acquisition (Reese, 1995) and in studies of "reading books aloud" to young children (Pellegrini, Perlumtter, Galda, & Brody, 1990). Maternal book-reading episodes for 3 year olds differ from book reading for 1 year olds (Heath, 1983; Ninio, 1980; Teale & Sulzby, 1986). Similarly, mothers of 5-year-old children pay more attention to reading aspects, whereas mothers of 1–3 year olds emphasize narration (Bus & van IJzendoorn, 1988). Programs targeting different ages must be developmentally adapted, and all the alphabetic skills must be developed within this framework. For example, when working on alliteration with young children, it would be inappropriate to ask children to isolate a phoneme but it would be challenging and appropriate to ask them to give a word's first syllable. Later on, the children will be able to address a part of the syllable and maybe even a phoneme. Byrne and Fielding-Barnsley (1995) demonstrated that phonological awareness and letter knowledge could be promoted in preschool by means of games. Both the writing and the reading program

in the present study were developmentally appropriate in their content, materials, and demands from the children.

Sylva, Hurry, Mirelman, Burrell, and Riley (1999) found that a direct literacy teaching method in reception (age 4–5) was more beneficial in promoting children's later achievements in first grade than was an indirect literacy exposure method. The student-mediators in the present study consistently used direct teaching methods within game activities (e.g., separating words into their syllables, learning the letter names, naming the letter in a word). We developed and used specific games to help children acquire or practice targeted skills in each session.

Interestingly, in regard to vocabulary, the younger group (3–4 year olds) learnt more new words during the year than did the older group (4–5 year olds). This outcome supports Whitehurst et al.'s (1999) finding that reading programs are more productive for preschoolers than for kindergartners. Younger children, they claimed, are at a more sensitive period for verbal development and thereby benefit more from literacy programs that focus on language. The results concerning vocabulary (PPVT) in the present study have to be considered with some caution, since we used raw scores and not norms (as we have no norms for this age group). We found that younger children learnt more words than their older peers, but we cannot categorically state that a specific gain of words means the same in terms of progress in the two age groups.

Several limitations of this study must be considered. First, due to the nature of the phonological awareness and orthographic awareness measures, children could perform on a chance level by guessing, and indeed the children used this strategy widely in the pretest. As a result, these measures demonstrated poor reliability, which prevented us from learning about children's progress from pretest to posttest on these measures. In the future, we recommend the use of tests in which children must show actual knowledge via production rather than choosing correct answers. Second, we did not have control group outcomes for all the measures due to budgetary restrictions, and this limited our ability to learn about the advantages of the two interventions compared to the controls on all literacy measures. Third, the relatively small size of our sample narrowed our ability to perform more analyses and may have restricted the implications of our results. It is also recommended in future studies to keep record of the groups' composition. This will enable the researchers to learn about the possible effects of the groups' structure on the children's progress. Finally, we focused on the differences between the two interventions; yet, in both programs, the teachers were included and we met the parents twice a year to discuss literacy development. These features were not present in the control group. We must keep in mind the fact that though these shared features cannot explain the differences in children's early literacy in the two programs, they can add to the advantage of the interventions over the control.

#### 4.3. *Implications*

What characteristics depict a successful intervention program for children from low SES community? It should certainly begin at a young age. Age-appropriate efforts aimed toward prevention should begin during preschool years (Strickland, 2002). Which components should be incorporated? A wide range of literacy skills and competencies may be emphasized: language development, understanding the functions of print, print awareness, concepts about print, literacy as a source of enjoyment, understanding about stories and their structure, expediency with books, knowledge of the alphabet, phonemic awareness, opportunities to write, and so on. Scarborough (2002) asserted that the stronger predictors of reading acquisition—the only ones proved causally related to learning to read—comprise phonological awareness and letter knowledge. Nevertheless, when she recommended candidates for appropriate literacy

interventions, Scarborough included the more general components of print concept and language skills. Further research should examine the relative contribution of different aspects of literacy and the optimal combinations between them. The meaningful results found in favor of the writing program demonstrate once again the unique importance of alphabetic skills even at this young age; indeed, such intervention promises to be very effective for promoting young low SES children's literacy, deserving continued empirical scrutiny.

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## Appendix A

### *A.1. Examples of joint writing and joint reading sessions*

#### *A.1.1. Joint reading*

Session no. 1 (out of four): "A cat on the mat" by Brian Wildsmith

1. Show the children the book cover and ask them about the subject of the book (a cat sitting alone on a mat who is joined by progressively more animals until it hisses them all away). Who will be the main character of the book? How do we know? Where is the author's name written? Where do we see the book's name?
2. Read the book name and ask the children to predict the story. "Now, what do you think this book will be about?"
3. Read the story aloud, showing the photographs.
4. Discuss the more difficult words with the children.
5. Discuss crowdedness and spaciousness: play a game with the children practicing these concepts. To the sound of a gong, ask the children to stand very close to each other and then, at the next sound of the gong, ask them to spread themselves around the room.
6. Discuss with children situations of crowdedness: when do we experience crowdedness and how do we feel in these situations?
7. Dramatize the story. Encourage children to tell the story and play the different animals.
8. Read the story aloud.

Session no. 2: "A cat on the mat" by Brian Wildsmith

1. Show the book to the children and ask them to share memories, to recall what the story is about.
2. Read the story aloud, showing the photographs.
3. Go through the pages and ask the children at each page to tell the story and to answer whether the cat was pleased when a new animal came to join it.
4. Discuss with the children the features of the animals (their size, color, preferred food, housing, etc.).

5. Give each child a red piece of paper (the “mat”) and photographs of the animals. Read the story with the children and ask the children to place the animals as they join the story on the mat. Encourage children to paste on the animals, and the teacher will hang their products on the wall.

#### A.1.2. *Joint writing*

Session no. 3: “Me and my name” (a session held twice during the third week of the program)

1. Spread the photographs of the children in the group (taken and developed by the teacher earlier) and pre-prepared cards of their printed names on the table. Add two photographs and two printed names of children who do not belong to the group.
2. Ask the children if they see photographs of children who are not in their group. After the children find the photographs, ask their help in finding the printed names of these children.
3. Ask the children: how will we know which printed name belongs to a child? We can check if we know the letters. If not, we can count the letters in each printed name, say the name aloud and try and figure out which name is longer. We can say, “Listen, the name Odelia sounds longer than the name Gil. Odelia is written with more letters, we see six letters in the name Odelia and three in the name Gil”.
4. When the “mystery” is solved, ask each child to take his/her own photograph and printed name. Encourage the children to count the letters in their names and put a sticker over each letter.
5. Play a memory game with the children, using the photographs and the printed names of the children in the group and including the two children whose photographs and names were added that day.

Session no. 4: “Me and my name” (held twice during the fourth week of the program)

1. Spread the photographs of the children in the group and the cards with their printed names on the table. Add printed cards with the first letters of each name. Ask each child to pick up his/her photograph and printed name.
2. Holding a pile of stickers that display the letters of the alphabet, tell the children: “I want to give you the first letter of your name. Can you help me and tell me which letter I have to give you?” If a child does not know to name the letter, ask the child to point to it on the letter cards that are on the table. If the child does not know, show him/her the letter and name it.
3. Give each child the sticker with the first letter of his/her name while saying it aloud. For example: “Here is I. I is the first letter in the name Iris”.
4. Let the children find several stickers of their initial letter, among stickers of letters that are spread on the table in different sizes and colors. Ask the children to adhere their initial letter several times around their printed name.
5. The session ends with each child saying his/her name, the first syllable of the name, the first letter, and goodbye (e.g., “My name is Maria, my name starts with ma, with the letter M, goodbye”).

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