



OPEN ACCESS

EDITED BY

Paola Bonifacci,
University of Bologna,
Italy

REVIEWED BY

Giulia Vettori,
University of Florence,
Italy
Margarida Martins,
ISPA-Instituto Universitário,
Portugal

*CORRESPONDENCE

Dorit Aram
✉ dorita@tauex.tau.ac.il

SPECIALTY SECTION

This article was submitted to
Educational Psychology,
a section of the journal
Frontiers in Education

RECEIVED 15 September 2022

ACCEPTED 13 December 2022

PUBLISHED 09 January 2023

CITATION

Aram D and Yashar R (2023) Parents' understanding of early writing development and ways to promote it: Relations with their own children's early writing. *Front. Educ.* 7:1044907. doi: 10.3389/feduc.2022.1044907

COPYRIGHT

© 2023 Aram and Yashar. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

Parents' understanding of early writing development and ways to promote it: Relations with their own children's early writing

Dorit Aram* and Rony Yashar

Early Childhood Research Lab, Constantiner School of Education, Tel Aviv University, Tel Aviv, Israel

The study examined how parents' understanding of early writing development was reflected in how they analyzed anonymous preschool children's writings and the support they offered to promote these children's writing. It also assessed how this general knowledge related to their own children's early writing development. The participants were 274 parents and one of their children ($M = 5.4$ years old). During home visits, the parents were shown vignettes with three writing samples of invitations to a party written by anonymous 5½–6-year-old preschoolers. The sample represented initial, intermediate, and advanced early writing levels. The parents were asked to relate to each of these vignettes and write what the child who wrote the invitation knows about writing and how they would recommend promoting the child. Additionally, the participating parents' children's early writing was assessed. We studied the parents' references to the following literacy aspects: Letters, orthography (e.g., final letters, vowel letters), phonology, and the writing system (e.g., the direction of writing, the separation between words) when relating to the vignettes and when recommending ways to support the children's writing development. The study's analyses revealed that parents distinguished between the writing levels of these anonymous children and suggested providing writing support recommendations in line with the various levels. Parents mainly referred to the letters when describing and suggesting support for the initial writing level. They referred more to the writing system when giving their opinion and suggesting support for the writing at an advanced level. The more parents referred to different aspects of literacy when analyzing the writing vignettes, the more aspects of writing support they suggested in their writing support recommendations. Parents who related to more literacy aspects in their writing support recommendations to anonymous children had children with higher writing levels. The study indicates that parents' general knowledge and understanding of literacy development has a role in fostering their own children's literacy skills.

KEYWORDS

parents' perceptions, parents' early literacy knowledge, early writing, writing support, understanding of the writing system, writing mediation, early literacy

1. Introduction

As a creation of culture, a writing system is passed on from generation to generation (Olson, 1984). Writing of preschool children before they formally learn to read and write represents their understanding of the writing system and is a good predictor of future literacy achievements (e.g., National Early Literacy Panel, 2008; Kessler et al., 2013; Kim et al., 2015). The overarching framework of our study is that writing development, like development in general, is embedded in the socio-cultural context, in which the child's home generates the closest and most meaningful system to the child's development. This line of thinking is associated with the socio-cultural school of Vygotsky (1978), neo-Vygotskians like Rogoff (1990), cultural psychologists like Bruner (1996), and contextual ecological models of development like that of Bronfenbrenner (1979). Vygotskian theory encourages thinking about children's development in light of their experiences and the meaningful support they get from others (Winsler, 2003). At home, parents' support can promote children's development within their Zone of Proximal Development (ZPD). Adequate support helps the child independently complete tasks previously completed with the adult's help (Vygotsky, 1978).

Indeed, parents play a key role in the development of their children's early literacy (Lonigan and Shanahan, 2009). One way that they do so is by engaging in writing activities with their children (e.g., Neumann et al., 2009; Puranik and Lonigan, 2011). The frequency of these activities and the nature of their writing support are meaningful to their children's literacy development (e.g., Aram et al., 2013; Skibbe et al., 2013; Inoue et al., 2018; Puranik et al., 2018). To be able to give a child meaningful support, adults must be aware of the children's ZPD – the distance between what the child can do independently and what s/he can do with assistance, as well as possible ways to join the child's knowledge and scaffold within the specific realm of development (Winsler, 2003). Yet, little is known about parents' knowledge and understanding of preschoolers' writing development and of the possible importance of this knowledge.

This study aimed to begin filling this gap by exploring how parents understand writing development, as reflected in how they relate to anonymous preschoolers' writing vignettes and the scaffolding they offer to promote these children. It also examined how parents' general writing development knowledge relates to their own children's writing skills. The study's results may help in planning effective guidance to parents, focusing on writing activities and appropriate writing support.

1.1. Emergent literacy and early writing

Children's emergent literacy skills are chief predictors of their later academic success (Bossaert et al., 2011; Costa et al., 2013). Emergent literacy refers to children's knowledge regarding spoken and written language prior to formal schooling. It includes

knowledge and skills that are precursors to conventional forms of reading and writing. Researchers agree that the major components that comprise emergent literacy are oral language skills, phonological awareness, print awareness, and early writing (Whitehurst and Lonigan, 1998).

Preschoolers are interested in writing using different tools (pencils, crayons, or digital tools) and attempt to write before they understand that written symbols represent sounds and create words that transmit messages (e.g., Neumann et al., 2009; Zhang and Quinn, 2020). Knowing how to write (beyond one's own name) shows increased knowledge about the writing system (Puranik and Lonigan, 2011). Indeed, in alphabetic languages, a young child's writing level provides evidence of their understanding of the alphabet system (Ritchey, 2008) and relates to other early literacy skills as well as literacy achievements in school (e.g., Caravolas et al., 2001; Mäki et al., 2001; National Early Literacy Panel, 2008; Kessler et al., 2013; Kim et al., 2015).

Studies show that children's writing unfolds in a fairly predictable pattern. They first produce marks that capture the general features of writing, such as segmentation into units and linearity. Next, the marks that children use have the shapes of letters in their writing system, in random order, and are unrelated to the sounds of the target words (invented spelling). They subsequently refine their written output using language-specific features. When children begin to understand the written code, they start to represent the sounds within words with phonetically relevant letters, not necessarily the right spelling. Writing continues to progress and includes both correct phonological spelling and invented spelling until the children become fully phonological spellers (e.g., Levin et al., 1996; Bowman and Treiman, 2002; Levin and Bus, 2003; Tolchinsky, 2008; Puranik and Lonigan, 2011).

To portray a full picture of children's writing knowledge, researchers analyze the components of children's early writing (Puranik et al., 2014). Tortorelli et al. (2022) divided this into three major skills: *Composition*, the ability to compose ideas to write; *Transcription*, the skills to express ideas on paper (including both handwriting and spelling); and *Writing concept* understanding, the knowledge of print conventions like print direction according to the orthography.

In our study, we focused on emergent transcription skills. Specifically, we studied parents' knowledge of young children's conceptual knowledge of the basics of the Hebrew writing system. That is children's letter knowledge, letter-sound connections, and print conventions (Pinto et al., 2016). We studied how parents refer to these writing aspects when viewing vignettes, including samples of different writing levels, and their reference to these aspects in the writing support they offer the children at different writing levels.

1.2. Parent–child writing interactions

Children's understanding of the writing system develops along with their age and their growing exposure to writing and the writing system. They first learn about writing through their

interactions with significant adults in their lives (Tolchinsky, 2003, 2008; Wasik and Herrmann, 2004). The home literacy environment captures parent-child literacy practices, such as joint book reading, teaching the alphabet, guiding them in spelling their names and words and supporting their phonological awareness *via* rhyming games. These home literacy practices are meaningful to children's early literacy development (e.g., Puranik et al., 2018) and later academic skills (e.g., Tamis-LeMonda et al., 2019).

Parents sometimes initiate joint writing (e.g., writing a greeting card) and, at other times, respond to their children's requests to write. While explicit instruction is required for children to master writing (Hall et al., 2015), parents teach their young children about the writing system (e.g., letter names and sounds), and this teaching is meaningful to their early literacy (Puranik et al., 2018) and later literacy skills (e.g., Inoue et al., 2018). Writing activities with young children are important since they allow the practice and integration of literacy skills such as phonological awareness, letter knowledge, and basic orthography understanding (Bindman et al., 2014). Effective parental support includes scaffolding at a challenging but not frustrating level and sensitivity to the child's competence (Vygotsky, 1978).

Studies that assessed the nature of parents' writing support focused on parents' references to the conventions of the writing system (e.g., writing in lines, presenting words separate from each other), phonological segmentation of words, the connection of word segments (phonemes) to letters that represent them, graphic production of the letters, and orthography-specific rules (e.g., in Hebrew, writing from right to left, using final letters; e.g., Aram and Besser-Biron, 2017).

Studies on parental writing support in different languages showed that the nature of parents' writing support, mainly the way that a parent helps the child to independently segment the words that the child wants to write, find the correct letters to write, and print them in a readable manner in line with their orthography, relates to their children's early literacy (e.g., Lin et al., 2012; Levin et al., 2013; Skibbe et al., 2013; Bindman et al., 2014; Aram et al., 2016; Cho and McBride, 2018) as well as reading and writing acquisition in first grade (e.g., Aram et al., 2013; Kalindi et al., 2018). Parental writing support is meaningful because it scaffolds the child's understanding of the writing system and gives the child the tools to observe writing and learn the rules for more conventional writing. Yet, what is parents' knowledge about early writing development? What do parents think about young children's writing products?

1.3. Parent knowledge of children's writing development

There is relatively limited research on parents' knowledge of child development (e.g., September et al., 2016; Sonnenschein and Sun, 2017). Studies on parents' general knowledge of milestones in child development showed that it related to infants'

early cognitive development (Keels and Raver, 2009), reading and math skills in kindergarten (Sonnenschein and Sun, 2017) as well as pleasure in parenting (Dias and Lima, 2018). These studies explored parents' general child development knowledge (e.g., "All infants need the same amount of sleep"), but what about specific knowledge about writing development and support?

We did not find studies on parents' knowledge and understanding of writing development, but there are a few studies related to teachers' knowledge of literacy development. Cash et al. (2015) studied teachers' beliefs and knowledge regarding children's early literacy. They found that teachers' ability to categorize young children's behaviors into and within language skills (e.g., vocabulary, narrative skills) and literacy skills (e.g., phonological awareness, alphabet knowledge), but not their beliefs, predicted children's language and early literacy skills. Knowledge within the literacy domain predicted children's gains in print knowledge, while language knowledge predicted expressive vocabulary gains. In a recent study, Bingham et al. (2022) revealed that teachers' knowledge about writing development related to their practices in class. Teachers who showed elaborated knowledge about writing development when describing children's writing development, based on three writing vignettes of children that showed different writing levels, offered the children in their class higher writing support. The more knowledgeable teachers had a wider, more complex view of writing development, and they related to more writing components (i.e., print concepts, handwriting, spelling, and composing). These studies raise questions regarding parents' writing development knowledge.

As to parents, they are generally familiar with their own children's early literacy skills; they are aware of their children's letter knowledge, phonological awareness, and early writing abilities with mild over or under estimation (e.g., Aram and Levin, 2016). Studies have not yet investigated parents' general knowledge regarding early writing development or how to support and scaffold children at different writing levels. However, recently, Segal et al. (2021) studied parents' reading-related knowledge (parents' phoneme segmentation, syllable segmentation, and syllable-pattern identification) and explored its relation to parents' writing support. Parents were presented with one child's (Maddie) writing vignette and were asked to give her feedback on her writing. They were also asked to help their own preschool child write a thank-you note. The researchers found that parents with higher reading-related knowledge gave more positive feedback to Maddie and better supported their own children. Like their previous studies (Segal and Martin-Chang, 2018, 2019), the researchers found that parents with higher reading-related knowledge had children with more advanced spelling skills.

In sum, preschoolers' writing is an excellent measure of their understanding of the written language and a good predictor of future literacy achievements. To the best of our knowledge, no research addressed questions regarding parents' understanding of early writing development and ways to scaffold and promote children's writing. It is interesting to learn about the importance of this knowledge.

1.4. The present study

This study aimed to start filling these gaps. The study explored how parents' understanding of emergent writing development is reflected in how they relate to anonymous preschoolers' writing vignettes representing different writing levels and the support they offered to promote the children. It also explored how parents' early writing understanding relates to their own children's early writing development.

Given the lack of previous research on these issues, most of our research questions remained open. We asked:

1. When talking about the early writing development of anonymous preschoolers', to what extent do parents distinguish between initial, intermediate, and advanced levels of children's early writing?
2. To what extent do parents' ideas of writing support differ when relating to vignettes of early writing outcomes that represent initial, intermediate, and advanced levels of early writing?
3. When analyzing parents' responses, can we create profiles for parents that reflect the complexity of their understanding of writing development and of early writing support?
 - a. We hypothesized that parents who referred to more aspects of writing and writing support when talking about one writing vignette would also do it when talking about the other two vignettes.
4. How does the complexity (breadth of parents' reference to the different early writing aspects) of parents' understanding of writing development relate to the complexity of their writing support recommendations?
5. What are the connections between the complexity of parents' references to anonymous children's writing development and the breadth of their writing support recommendations, and the level of their own child's early writing?

2. Materials and methods

2.1. Participants

Participants were 274 parents (248 mothers) aged 28–55 years ($M = 38.01$; $SD = 4.93$) and one of their children (138 boys and 136 girls). The children's mean age was 5.4 years ($M = 64.71$ months, $SD = 6.72$). Most of the parents were married (89.80%), and the rest were single (5.80%), divorced (4%), or widowed (0.4%). The parents in our sample were mostly educated. About 10% of the parents had a high school diploma, 16% had a post high school diploma; 40% held a bachelor's degree, 33% held a Master's degree; and 1% had a Ph.D. In Israel, 50.1% of adults have academic degrees (OECD, 2021). Participating families had an average of 2.51 children ($SD = 0.86$), in line with the birthrate in Israel (OECD, 2016).

Hebrew was the spoken language in all the participating families. The Hebrew writing system is a Semitic abjad writing system. It consists of 27 letters (22 regular and five final letters) that are written from right to left, and their basic function is to represent consonants. Four of the letters serve the dual function of representing consonants and vowels. Hebrew's syllable structure is mainly Consonant-Vowel and Consonant-Vowel-Consonant. Hebrew does not include single-phoneme words. It is characterized by derivational morphology, and words consist of around 3–5 letters.

All the participating children learned in preschools, with 94% in public preschools and the rest in private settings (e.g., Montessori preschools), which are also supervised by the Ministry of Education. Preschools in Israel are physically and pedagogically detached from elementary schools. In each class, the staff includes a certified early education teacher, usually holding a degree equivalent to a minimum Bachelor's degree, and a paraprofessional assistant. Formal reading and writing instruction begin in first grade. The preschool's early literacy curriculum refers to oral language, communication skills, book immersion, and alphabetic skills (Levin et al., 2007). The curriculum emphasizes teachers' autonomy in selecting the instruction methods and the specific goals that they want to emphasize in their classes. Teachers tend to focus on language skills (including rhyming games), communication, shared-book reading, and the alphabet. They rarely engage children in writing activities (Sverdlov et al., 2014).

2.2. Procedure

The study received ethics approval of the Tel-Aviv University ethics committee. Participants were recruited through a snowball method. Flyers inviting parents to participate in a study that explores literacy development and parents' thoughts about literacy development were distributed *via* preschool teachers and online parent groups. Parents who expressed interest signed a consent form prior to beginning the study. M.A. students in education collected the data within children's homes during a 30-min session in the middle of the school year. They presented three writing vignettes to the parents on separate pages. Their order of appearance was: First vignette (intermediate level), second vignette (initial level), and third vignette (advanced level). We presented them in this order to avoid a pattern of advanced to initial or initial to advanced. We thought that this order would encourage parents to think about each writing sample. On each page, the message the child intended to write was printed at the top of the page, and the child's writing was presented below it (see Figure 1). We asked the parents two questions regarding each vignette: (1) What does this child (same gender as their own child) know about writing; and (2) If you were asked to sit next to the child for 5–10 min and guide him/her in writing - how would you promote him/her? How would you help him/her to understand the idea of writing better and write better in practice? The parents wrote their answers to each question independently (we allocated four lines for writing after each question). During this time, the researcher assessed the children's early writing.

| 1: Initial level | 2: Intermediate level | 3: Advanced level |
|--|----------------------------------|---|
| אני מזמין את ההורים למסיבה בגן | הורים יקרים בואו למסיבה | אמא ואבא אני מזמין אתכם למסיבה שתהיה בגן שלנו ביום ששי |
| | | |
| "I invite the parents to a party in the preschool" | "Dear parents come to the party" | "Mom and Dad I invite you to a party on Friday in my preschool" |

FIGURE 1
The writing vignettes.

2.3. Measures and coding

2.3.1. Parents' understanding of early writing development and ways to promote it

Our measurement was based on the Early Writing Knowledge Assessment (EWKA; Bingham et al., 2022). Parents were presented with three writing vignettes written by anonymous Israeli preschoolers (age 5½ to 6 years old) from a preschool that serves children from middle socio-economic backgrounds. In that preschool, children were asked to invite their parents to a party in the preschool. We chose three writing vignettes demonstrating three levels of writing development that suit Israeli children in the age range of our sample (see Figure 1).

The three invitations presented three writing levels:

1. The initial level example represents the beginning writing of letters. The child knows a few letters and creates a mixture of writing systems (letters from Hebrew, English, and non-letter signs). The child writes some letters in mirror writing. There is a beginning of a tendency to write in a line, but we do not see a separation of print into words. Also, there is no connection between the child's verbal description of the writing ("I invite the parents to a party in the preschool") and the actual written product.
2. In the intermediate level example, the child uses clearly identifiable Hebrew letters and writes in a line from right to left (in line with the Hebrew orthography). The child partially understands how to split ideas into words and leave space

between words, how to divide a word into its sounds, knows the letters, relates the sound to the phonetically appropriate letter, and writes two vowel letters. Still, the child does not spell correctly, omits letters (mainly vowel letters), and does not use final letters. The written text is somewhat readable.

3. In the advanced level example, the child uses Hebrew letters (consonants and vowels). The child knows to write in a line from right to left, break a word into its segments and relate each segment (sound) to the letter that suits it. There is an (unstable) separation between the words in the sentence. The child uses some vowel letters. There is a clear connection between the content the child was asked to write and the writing product; the sentence is long and clear.

The parents were asked to relate to each of these vignettes and write what the child who wrote the invitation knows about writing, and how they would recommend promoting the child.

2.3.2. Parents' references to the writing vignettes: Coding

When analyzing parents' responses to each of the writing vignettes, we focused on their references to letter knowledge, phonological awareness, unique characters of the Hebrew orthography, and general aspects of the writing system (writing in lines, the direction of writing, etc.). First, we summed parents' references to each writing aspect and then created a more general score that referred to the complexity of their perception, as detailed below.

2.3.2.1. Sum of references to each writing aspect

For each vignette we counted parents' references to each of the following four aspects: (1) Letters: References to letter recognition, use of non-letter symbols, correct letter writing, the forming of the letters, etc. (e.g., "she knows the letters," "Here she invented letters," "He knows how to write B correctly," "It's the right letter," "She recognizes the letters"); (2) Orthography: References to specificities in the Hebrew orthography like final letters, vowel letters, and homophonic letters (e.g., "Missing final letters," "She is not aware of the 'silent letters'," "He is confusing between H and A," "He missed the H at the end of the word because we do not hear it"; Ravid and Shalom, 2012); (3) Phonology: References to word segmentation, awareness of syllables/sub-syllables/phonemes (e.g., "She understands how to split a word," "She listens to the sounds in the word," "He writes what he hears," "He did not notice the last sound of the word"); and (4) The writing system: References to writing in a line, the direction of writing, separation between words or sentences (e.g., "She separates the lines in writing," "She knows that we write from right to left," "Writes the letters in order in the same size," "Does not understand that a sentence has to be split into words with spaces"). For examples of the scoring of parents' responses please see [Appendix](#).

The sum of the references in each of the four categories constituted the summary score in that index. Reliability between two judges (graduate students in the Department of Special Education and Educational Counseling) regarding 15% of the products showed 80, 97, 91, and 79% absolute agreement for the categories *letters*, *orthography*, *phonology*, and *writing system*, respectively. Beyond that, there was usually partial agreement in cases of lack of agreement, and the two judges discussed these cases to reach an agreement.

2.3.2.2. Writing perception complexity score

We assumed that a parent who referred to more aspects when talking about each writing vignette is a parent whose writing vision is broader and more complex (Bingham et al., 2022). A parent who refers several times only to one aspect (e.g., letters or phonology) perceives children's early writing in a narrower way. We summed the aspects parents referred to when describing the child's knowledge. We referred to the four aspects (letters, orthography, phonology, and writing system), and the possible range was zero to four.

2.3.3. Parents' recommendations for writing support: Coding

When analyzing the parents' support recommendations, we refer to the same four writing aspects (letter, orthography, phonology, and the writing system). We also referred to two general recommendations: not to teach the child and give the child a model to copy (Segal et al., 2021) as detailed below.

2.3.3.1. Sum of support recommendations for each writing aspect

For each vignette we counted parents' writing support recommendations that referred to each of these four aspects: (1) Letters: References to writing support that addresses the letters (e.g., "I would work on letters," "teach letter recognition," "teach her more letters," "play games with letters," "practice writing letters"); (2) Orthography: Recommendations for teaching specific aspects of the Hebrew orthography like final or vowel letters (e.g., teach him about H (ה) at the end of the word, "show final M (מ/ם)," "talk about letters that sound the same like ק/כ"); (3) Phonology: References that relate to sound awareness support (e.g., "you have to teach him their sounds," "I will emphasize each letter according to its sound," "I will correct her when she misses a sound," "I will split words into their specific sounds"); and (4) The writing system: Recommendations to draw the child's attention to the regularities of the writing system (e.g., "teach her to write from right to left," "emphasize spaces between words," "sit with him with booklets and teach him how the words should be written," "I would teach him that every word is made up of several letters together"). We also counted their general recommendations not to teach the child (e.g., "I would not promote my child," "I would say well done," "I would leave him," "I would not promote him at all") and their recommendation to give the child a model to copy (e.g., "I would write the word and ask her to copy," "ask him if he wants me to show him how to write," "show her how to write each word separately"; Segal et al., 2021).

The sum of the references in each of the first four categories constituted their summary score for that category. As to the last two categories, the reference to them was binary. We marked whether or not the parent referred to each of these categories. Reliability between two judges (graduate students in the Department of Special Education and Educational Counseling) regarding 15% of the products showed 80, 89, 87, 75, 91, and 94% absolute agreement for the categories of *letters*, *orthography*, *phonology*, *writing system*, *no support*, and a *model to copy*, respectively. Beyond that, there was usually partial agreement in cases of lack of agreement, and the two judges discussed these cases to reach an agreement. For examples of the scoring of parents' recommendations please see [Appendix](#).

2.3.3.2. Writing support complexity score

We summed the aspects parents referred to when describing possible writing support recommendations. We referred to letters, orthography, phonology, and writing system. The range was zero to four. For example, if a parent referred to letters twice and to phonology once, her complexity score was two (letters and phonology). We did not include the parent's recommendation not to support writing or present the child with a model because they are more general.

2.3.4. Children's early writing

Each child was asked to write their name and four other words that represent known nouns: "plate" ZLXT; "faucet" BRZ; "peach" APRSK; and "rain" GSM. These words include 14 out of the 22 letters in the Hebrew alphabet. The letters represent consonants, as all letters stand for consonants in Hebrew (an abjad alphabetic system), but four letters can also represent vowels (Ravid, 2012). In writing Hebrew, children first represent consonants and then include some letters for vowels (Levin et al., 1996).

The words were presented through pictures on cards. The child was given a card with the drawing and was asked: "Please write the word X below the drawing however you can." The writing of their name was intended to make the child feel comfortable, and it was not analyzed since the vast majority of the children wrote their name in standard writing.

The writing products were analyzed on a six-point scale (Levin and Bus, 2003): (1) signs that are not letters, such as lines, circles, or unidentified signs; (2) random letters – invented spelling in which the child writes letters that are not phonologically related to the word; (3) basic use of consonants - the child uses one appropriate consonant with the necessary sound value not randomly (homophonic or phonological substitution are accepted as appropriate); (4) the child uses more than one of the consonants of the word (homophonic or phonological replacements are accepted) but not all of them. The child may add letters to the corresponding consonants; (5) full consonant writing with additions or disruptions (homophonic replacement); and (6) standard writing. The average score across the four words constituted the writing level score ($\alpha = 0.93$). Inter-judge reliability by two MA educational counseling students on 15% of participants showed 86% agreement ($Kappa = 0.81$).

2.4. Data analysis

First, we present the statistics relating to the sum of parents' references to the different aspects in their description of the children's knowledge about early writing (means and ranges). To learn about the extent that parents distinguish between different levels of children's writing, we present a General Estimating Equation (GEE) analysis with repeated measures that compares the three writing levels (three vignettes). Second, we present the statistics relating to the sum of parents' recommendations for writing promotion (means and ranges). To learn about the extent that parents' ideas of writing support differ when relating to different levels of writing, we present a General Estimating Equation (GEE) analysis with repeated measures that compares the three writing levels (three vignettes). Third, to learn about parents' profiles of understanding writing development and writing support recommendations, we present parents' complexity scores – the sum of aspects in parents' descriptions of the children's writing knowledge and their support recommendations at each writing level, as well as the correlations between them. We then present two cluster analyses of parents

who referred to many/few aspects in their references to children's writing and parents who gave many/few writing support recommendations. We ran a Crosstabs analysis to learn how these clusters relate to each other. Last, to learn about the connections between the scope of parents' references to anonymous children's writing and their writing support recommendations with the level of their own child's early writing, we present an ANOVA that explored the differences between the writing levels of children whose parents belong to each of the clusters.

3. Results

3.1. Three writing levels: Differences in the sum of parents' references to the children's knowledge and writing support recommendations

First, we present the number of the parents' references to letters, orthography, phonology, and the writing system when describing the child's knowledge ("what the child knows about writing") in the three vignettes. We ran a GEE analysis with repeated measures to compare the sum of parents' references to these vignettes in each of the assessed aspects (see Table 1).

Table 1 shows that overall, parents' references to the writing samples were fairly brief and that they varied widely in their knowledge, with differences emerging across the writing levels. Parents referred frequently to the *letters* and paid relatively little attention to *phonology* and *orthography*. They also acknowledged children's awareness of the rules of the *writing system* (e.g., lack of space between words).

Parents clearly differentiated between the three writing levels across the four writing aspects. *Post hoc* Bonferroni tests showed that parents referred significantly more to *letters* at the initial writing level compared to the intermediate level and more at the intermediate level compared to the advanced writing level. Parents referred to both *orthography* and *phonology* significantly more at the intermediate writing level compared to the advanced level and more at the advanced writing level compared to the initial level. Lastly, Bonferroni tests showed that parents referred significantly more to the *writing system* at the advanced writing level compared to the intermediate and initial writing levels. No significant difference was found between the number of parents' references to the *writing system* between the intermediate and the initial writing levels.

Next, we present the sum of parents' writing support recommendations for each vignette ("how will you promote him/her") along with a GEE analysis with repeated measures to study the differences in the number of parents' writing support recommendations for the three writing levels across the assessed aspects (see Table 2).

Table 2 shows that parents gave few recommendations overall and there were significant differences in the number of parents'

TABLE 1 Differences in the sum of parents' references to the different writing levels ($N = 274$).

| Aspect | Writing's level | Range | $M (SE)$ | Wald χ^2 | Bonferroni comparisons |
|----------------|-----------------|-------|-------------|---------------|-------------------------|
| Letter | Initial | 0–4 | 0.96 (0.04) | 73.50*** | I ¹ > IN > A |
| | Intermediate | 0–3 | 0.68 (0.03) | | |
| | Advanced | 0–3 | 0.54 (0.03) | | |
| Orthography | Initial | 0–1 | 0.05 (0.01) | 67.11*** | IN > A > I |
| | Intermediate | 0–3 | 0.47 (0.04) | | |
| | Advanced | 0–3 | 0.32 (0.03) | | |
| Phonology | Initial | 0–2 | 0.23 (0.03) | 61.03*** | IN > A > I |
| | Intermediate | 0–3 | 0.58 (0.04) | | |
| | Advanced | 0–2 | 0.38 (0.03) | | |
| Writing system | Initial | 0–5 | 0.80 (0.05) | 38.05** | A > IN, I |
| | Intermediate | 0–4 | 0.88 (0.05) | | |
| | Advanced | 0–5 | 1.20 (0.06) | | |

** $p < 0.05$; *** $p < 0.001$. ¹ I, initial; IN, intermediate; A, advanced.

TABLE 2 Differences in the sum of parents' writing support recommendations for the different writing levels ($N = 274$).

| Aspects | Writing level | Range | $M (SE)$ | Wald χ^2 | Bonferroni comparisons |
|-------------------------------|---------------|-------|-------------|---------------|-------------------------|
| Letter | Initial | 0–4 | 0.94 (0.05) | 202.18*** | I ¹ > IN > A |
| | Intermediate | 0–2 | 0.32 (0.03) | | |
| | Advanced | 0–3 | 0.20 (0.02) | | |
| Orthography | Initial | 0–1 | 0.01 (0.00) | 71.09*** | IN > A > I |
| | Intermediate | 0–3 | 0.65 (0.05) | | |
| | Advanced | 0–3 | 0.37 (0.04) | | |
| Phonology | Initial | 0–5 | 0.55 (0.05) | 40.08*** | I, IN > A |
| | Intermediate | 0–3 | 0.55 (0.05) | | |
| | Advanced | 0–3 | 0.23 (0.03) | | |
| Writing system | Initial | 0–4 | 0.64 (0.05) | 10.93*** | A > IN, I |
| | Intermediate | 0–4 | 0.68 (0.05) | | |
| | Advanced | 0–3 | 0.83 (0.05) | | |
| I will not teach ² | Initial | 0–1 | 0.07 (0.01) | 37.97*** | A > IN > I |
| | Intermediate | 0–1 | 0.11 (0.02) | | |
| | Advanced | 0–1 | 0.21 (0.02) | | |
| A model to copy ² | Initial | 0–1 | 0.20 (0.02) | 9.21** | I, IN > A |
| | Intermediate | 0–1 | 0.18 (0.02) | | |
| | Advanced | 0–1 | 0.11 (0.02) | | |

** $p < 0.01$; *** $p < 0.001$. ¹ I, initial; IN, intermediate; A, advanced; ² These metrics are binary.

support recommendations across the studied aspects. Again, parents mainly referred to *letters*. They said that they would teach the children the Hebrew alphabet, show the children what the letters look like, teach them to print letters, etc. They also related to the rules of the *writing system*, saying that they will teach the child where a word ends and another begins, draw attention to the correct writing direction, etc.

Post hoc Bonferroni tests indicated the source of the differences. Parents gave significantly more recommendations concerning *letters* at the initial writing level compared to the intermediate level and more at the intermediate level compared to the advanced writing level. The number of recommendations to promote *orthography* at the intermediate writing level was significantly greater than at the advanced level and at the advanced

TABLE 3 Complexity: Number of aspects in parents' description of the writings and in their writing support recommendations at the different writing levels (N = 274).

| | Writing's level | M | SD | Range |
|----------------------------|---------------------|------|------|-------|
| Initial writing level | Writing description | 1.57 | 0.81 | 0–4 |
| | Writing support | 1.61 | 0.87 | 0–3 |
| Intermediate writing level | Writing description | 2.03 | 1.01 | 0–4 |
| | Writing support | 1.68 | 0.93 | 0–4 |
| Advanced writing level | Writing description | 1.78 | 1.04 | 0–4 |
| | Writing support | 1.28 | 0.92 | 0–4 |

level more than at the initial writing level. The number of recommendations to promote *phonology* at the intermediate and initial writing levels was significantly greater than at the advanced writing level, with no differences between initial and intermediate writing levels. Parents recommended promoting the children's understanding of the *writing system* significantly more at the advanced writing level compared to the intermediate and initial writing levels (with no significant differences between these two levels). Significantly more parents recommended “no teaching” at the advanced writing level compared to the intermediate level and more at the intermediate level compared to the initial level. Significantly more parents suggested giving the child a model to copy at the intermediate and initial writing levels than at the advanced writing level, with no differences between initial and intermediate writing levels.

3.2. Complexity of parents' writing perception: Breadth of parents' view

Table 3 presents a description of the sum of aspects that parents referred to when describing children's knowledge and when suggesting writing support. It presents parents' references to the three vignettes separately: initial, intermediate, and advanced writing levels.

Table 3 shows variation between the parents. Some parents did not relate to the writing aspects we studied, and some referred to all four aspects in each writing level (except for support recommendations at the intermediate level). The median score referenced two aspects for writing description and writing support across the writing levels.

We studied the correlations (Spearman) between the number of aspects the parents referred to when discussing the child's writing and the number of aspects that they referred to in their support recommendations and found significant low to medium correlations: $r = 0.18$, $p < 0.01$; $r = 0.28$, $p < 0.001$; and $r = 0.26$, $p < 0.001$ at the initial, intermediate and advanced writing levels, respectively. In other words, the more categories the parent included in her reference to the child's writing knowledge, the more categories she referred to in her writing support recommendations.

To deepen our understanding, we used a K Cluster Analysis to map the number of aspects in parents' references to the three

writing levels when relating to children's writing knowledge (letters, orthography, phonology, and the writing system) and the parallel aspects in their writing support recommendations. The best grouping of the references to writing at the three levels (writing development knowledge) was into two clusters: (1) Broad view of writing development: Parents who referred to many writing aspects ($n = 145$) and (2) Narrow view of writing development: Parents who referred to few writing aspects ($n = 129$). Similarly, the best grouping of the parents' writing support recommendations was into two clusters: (1) Broad writing support: Parents who referred to many aspects ($n = 153$) and (2) Narrow writing support: Parents who referred to few aspects ($n = 121$). Table 4 and Figure 2 present the clusters.

To learn how these groups of parents who refer to many/few aspects in their references to children's writing relate to the groups of parents who referred to many/few aspects in their writing support recommendations, we ran a Crosstabs analysis. We found that parents who had a broad view of writing development and referred to more writing aspects in their references to the writing vignettes (writing development knowledge) also referred to more aspects in their writing support recommendations $X^2 = 16.72$, $p < 0.001$. Of the parents, 67% showed a broad view of both writing development and writing support, 57% showed a narrow view of both writing development and writing support, 32% showed a broad view of writing development and a narrow view of writing support, and 43% showed a narrow view of writing development and a broad view of writing support.

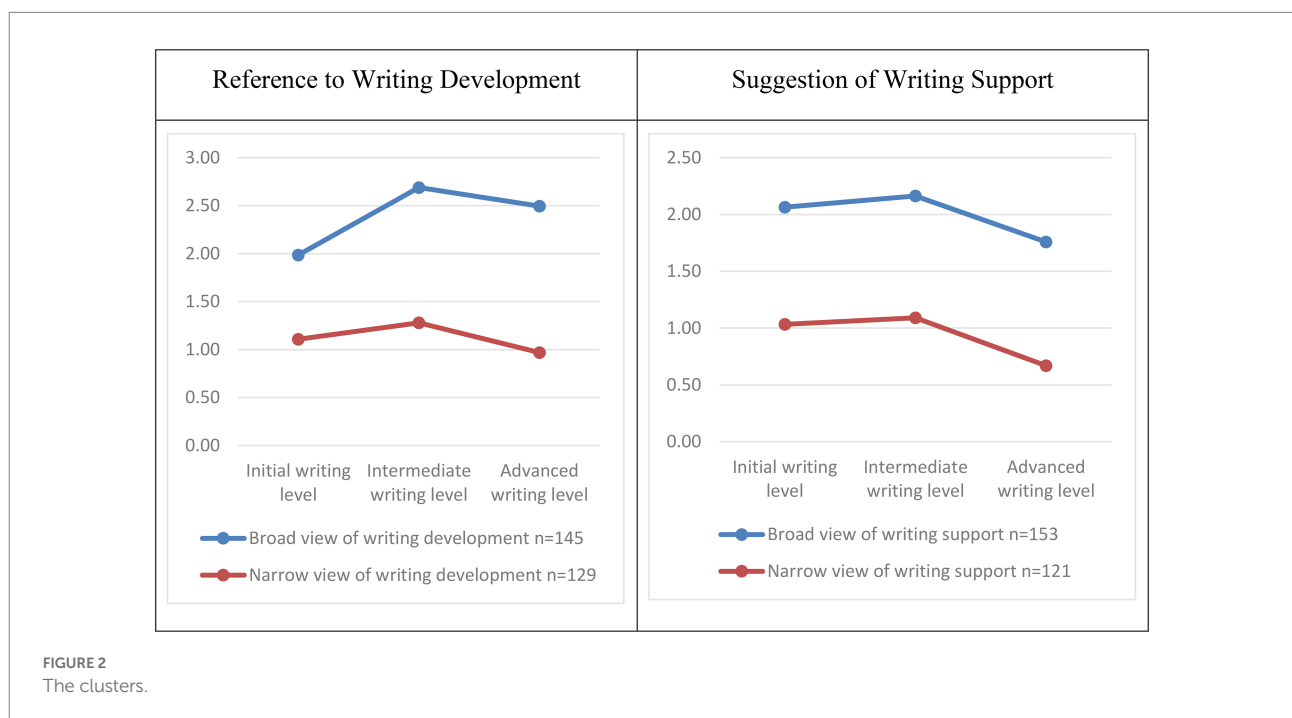
3.3. Parents' writing perception and their own children's writing level

The children's mean writing level was 3.52 ($SD = 1.54$). This indicates that when writing words, children used mainly basic consonantal spelling (e.g., when asked to write the word “peach” APRSK; a child wrote “ABLM,” using only the correct consonant “A”) or partial consonantal spelling (e.g., when asked to write the word “peach” APRSK; a child wrote “ALGK,” using the correct consonants “A” and “K”). Ten children did not agree to write, and instead, they drew the objects. As such, they were excluded from the following analysis.

TABLE 4 Classification of parents' views according to their complexity scores into clusters: Narrow and broad view of writing development and writing support¹ (N =274).

| Writing development knowledge | Narrow view of writing development: Few aspects n =129 | Broad view of writing development: Many aspects n =145 |
|--------------------------------|--|--|
| Initial writing level | 1.11 | 1.99 |
| Intermediate writing level | 1.30 | 2.70 |
| Advanced writing level | 0.97 | 2.50 |
| Writing support recommendation | Narrow view of writing support: Few aspects n =121 | Broad view of writing support: Many aspects n =153 |
| Initial writing level | 1.03 | 2.07 |
| Intermediate writing level | 1.09 | 2.16 |
| Advanced writing level | 0.67 | 1.76 |

¹Possible range: Zero to four aspects.



To learn about the differences between the writing level of children of parents with broad/narrow views of writing development and writings support, we ran a two-way ANOVA: Child's writing level × References to the writing vignettes (many/few writing aspects) × Writing support view (many/few writing aspects in their writing support recommendation). We did not find a significant effect for reference to children's writing ($F_{1,262} = 1.85, p = 0.17$). There was no difference between the writing levels of children of parents who referred to few or many aspects in their reference to the writing knowledge of the children who wrote the vignettes. We found a significant effect for writing support recommendations ($F_{1,262} = 4.40, p = 0.03$). Parents who showed a broad view of writing support and referred to more writing aspects in their writing support suggestions had children who showed more advanced writing levels than parents who showed a narrow view of writing support and referred to few aspects. We did not find a significant interaction between the two ($F_{1,262} = 0.65, p = 0.42$).

4. Discussion

Acknowledging parents' central role in their children's literacy development and the scarcity of research on parents' knowledge of early literacy development, this study explored how parents related to the writings of preschoolers at different levels of writing development (initial/intermediate/advanced). An interesting aspect of this study is that we evaluated parents' references to the writing of children who are not their own. Based on Bingham et al. (2022) approach to assessing teachers' early writing knowledge (EWKA), we showed parents vignettes of children's writing and asked them to express their opinion on these vignettes. This assessment revealed trends in parents' writing development knowledge.

The main results showed that of the four aspects of writing that we assessed (letters, orthography, phonology, and the writing system), parents mainly referred to letters and to the principles of

the writing system, with orthography and phonology rarely mentioned. Parents distinguished between the different writing levels and adjusted their writing support recommendations accordingly. To assess the complexity of parents' understanding of early writing development, we created an overall score that reflected the number of aspects that parents addressed (e.g., if the parent referred to letters twice and to phonology once, the score was two aspects). We found that parents mainly referred to only two aspects in their writing assessment and in their writing support recommendations. The more aspects the parent addressed in the writing assessment, the more aspects she addressed in her support suggestions. Cluster analysis showed that there are two groups of parents, those who have a narrow view of writing development and referred to fewer writing aspects in their description of children's knowledge and their writing support recommendations at three levels of writing and those who have a broader view and referred to more aspects. It is interesting that parents who saw writing support as a broad process and included different aspects of writing in their suggestions have children with a higher writing level. This relationship was not found regarding parents' references to the children's knowledge.

4.1. Understanding children's writing development and ways to promote it

Parents referred to the four early writing aspects that we assessed when describing the children's writing knowledge and when recommending ways to promote writing. At the same time, they did not elaborate, like in other studies (Leyva, 2019). They referred frequently to letters and to the writing system (e.g., words have to be separated). The centrality of letters as a major aspect of literacy development can be seen in the many letter books, letter games, puzzles, etc. in the stores. When parents read alphabet books to their children, they focus on the name of the letter and pay less attention to the phonology or the structure of the word in which the letter appears (Davis et al., 2010; Bergman Deitcher et al., 2021). In studies on parental writing support, many parents simply dictate letters to their children (Skibbe et al., 2013). Also, when thinking about their writing interaction with their own child, they tend to focus more on letter knowledge and the general writing system and less on phonology, orthography, or letter-sound connection (Aram and Bergman Deitcher, in print).

It was interesting to see that parents paid little attention to phonological or orthographic knowledge. This knowledge is significant and fundamental to the acquisition of reading and writing (Levin and Aram, 2013; Jones, 2015), yet parents seem to be less aware of it. There is similar evidence that preschool teachers pay less attention to phonology (Pelatti et al., 2014; Sverdlov et al., 2014). It may be that parents write automatically, seeing the letters and the finished product in front of their eyes, and not thinking about the process involved in writing such as word segmentation or correct spelling, and thus consider children's writing in a similar way.

The study's results expand our understanding of parents' knowledge of children's writing development. Existing studies provide evidence that parents are familiar with their own children's academic and literacy skills (Korat, 2011; Sonnenschein et al., 2014; Aram and Levin, 2016), and that mothers of preschool-age fraternal twins are sensitive to the differences between their children's writing levels (Aram, 2007). The present study expands this knowledge and reveals that parents differentiate between the writing levels of anonymous children, both in their analysis of the children's knowledge about writing and in their writing support recommendations. Unlike Aram (2007) study, in the present study, parents had no prior information on the children's development beyond the writing vignettes.

When referring to the initial level writing sample, parents frequently referred to letters both in their description of the children's writing knowledge and in their support recommendations. They wrote that the child does not know the letters and how to write them, and he/she had to learn the letters. It seems that parents refer to letters as the building blocks of a written message (Levin and Ehri, 2009), and to letter knowledge as the basis of the acquisition of writing and reading (Robins et al., 2014). When referring to the more advanced writing vignettes, parents referred less to letters. Similarly, Segal et al. (2021) found that parents offered fewer suggestions relating to letters to children with higher spelling skills.

Even though parents generally related less to orthography and phonology, the intermediate level was the one where they did it the most, both in their writing knowledge descriptions and in their support recommendations. Parents understood that the child who wrote the intermediate vignette had a basic understanding of the writing system, but they needed "fine-tuning" of the understanding that each sound has its specific representing letter as well as the specificities of the Hebrew orthography.

At the advanced level, parents referred the most to the writing system (e.g., a separation between words, writing in a line and within the line, separation between lines, reference to a sentence, reference to the direction of letters). From the vignette, the parents probably understood that the child knows how to segment a word into its phonological segments and associate them with letters. The child wrote a long readable message and used some specific features of Hebrew like final letters. Therefore, the parents referred more to aspects of the writing system that are less salient in the vignette such as separating words, maintaining letters within a line, writing the letters in the same size, etc. – aspects that they thought would help the child write a more "organized" message.

Like in Segal et al. (2021), parents were less likely to provide the advanced child with a written model to copy. Interestingly, although the invitations in the intermediate and advanced levels contained many spelling errors, connected words, omitted letters, etc., parents tended to write that there is no need to support the children at the higher levels (especially when relating to the child at advanced writing level). That is, they thought that the knowledge that these children have is sufficient for preschool and that it is better

to “leave” them. The thought that these children have enough knowledge and there is no need to promote them represents a line of Israeli parents’ thinking about promoting writing. There is a tendency to separate the kindergarten from the school and attribute the kindergarten to play and the school to teaching (Aram et al., 2016). Interestingly, Bingham et al. (2022) found a similar trend among kindergarten teachers in the US who thought that the children who write at a relatively high level did not need to be further promoted.

4.2. Complexity of parents’ perception of writing development: Relations to their own child’s writing skills

We studied the complexity of parents’ views on early writing development, by counting the number of aspects that they refer to (out of four) when discussing children’s early writing. The aspects that were assessed in our study relate to children’s *transcription skills* and *writing concept* understanding (Tortorelli et al., 2022).

We found that most of the parents referred to two aspects. The more aspects the parent included in the analysis of the child’s writing, the more aspects she included in her writing support recommendations. This result is somewhat like that of Bingham et al. (2022) who found that teachers’ writing development knowledge complexity was related to the writing practices they implemented in class. Yet, the correlations in our study were low to medium. It is likely that teachers have seen more children’s writings and have more academic knowledge about writing compared to parents.

Like in studies that found that mothers have a writing support style across different writing tasks (Aram and Besser-Biron, 2017), parents in our study showed a “style” across the writings. That is, they were classified into two groups: those who had a broader view of writing and referred to more aspects in their description of the children’s writing and in their writing support across the three writings, and those who had a narrower view of writing and referred to fewer aspects across the three writing vignettes. Parents who showed a broader view of writing support and related to more aspects in their recommendations for promoting the writing of anonymous children had children with higher writing levels.

The relationship between a broader view of writing support and children’s early writing is meaningful. It highlights the centrality of adults’ scaffolding and the importance of parents’ understanding of effective writing support. Studies showed that the way that parents support their children’s writing relates to the children’s early literacy skills and reading and writing in the first grades beyond the family’s socio-economic background and the child’s age and early literacy skills (e.g., Aram et al., 2013; Neumann, 2018). The current study stresses for the first time that parents’ knowledge of writing support goes beyond the support of their own child. It is a more general knowledge that probably benefits their children during everyday literacy interactions.

4.3. Limitations and suggestions for future studies

The study has several limitations that prompt ideas for future studies. First, regarding our participants: (a) the participants were mostly well-educated parents, reflecting higher SES. This may weaken the ability to generalize the findings to more diverse populations. There is evidence that children’s socio-economic background is related to their early literacy skills (e.g., Lee and Al Otaiba, 2015). We suggest that future studies will study the writing development knowledge of parents from diverse backgrounds; (b) we studied mostly mothers. Future studies should include more fathers, and we suggest also studying the writing development knowledge of older siblings and grandparents because they spend a lot of time with preschoolers (e.g., Sherr et al., 2018; Elias et al., 2019), and can participate in literacy activities with them (Del Boca et al., 2018; Elias et al., 2020), and be early writing supporters; and (c) bilingualism in early childhood is common (e.g., Ducuara and Rozo, 2018). The parents in our sample spoke only Hebrew with their children. We recommend that future studies address this issue. Second, regarding the method, the parents in our study described very briefly the writing knowledge of the children who wrote the vignettes and gave short writing support recommendations. We asked only two open-ended questions and parents wrote their responses within the four lines below each question. We recommend that future studies will add a few guiding questions that will encourage parents to elaborate.

4.4 Implications and conclusion

From a theoretical point of view, our study strengthens the view of child development within the social context and the importance of adults’ knowledge of child development and ways to scaffold it (Vygotsky, 1978). Within the realm of early literacy, our study shows that adults need to have knowledge regarding effective scaffolding in general and writing in particular. Preschool children’s writing represents their understanding of their writing system and includes reference to various literacy aspects, including letter knowledge, orthographic awareness, phonology, and understanding the principles of the specific writing system. Our study is the first to show that parents distinguish between different levels of early writing. It showed that a broad view of writing support is meaningful. Parents who had a broad view of writing support when thinking about the writing of anonymous children had children with higher literacy skills. We think that it is important to help parents learn about their children’s literacy, initiate writing situations in the family, and draw the children’s attention to the various aspects of writing. Teaching parents about writing support may advance their understanding of their children’s early literacy development and give them tools to support their children’s literacy in an effective way. The implications of the research are also true for children with special needs who show difficulties in the development of literacy. It is

possible that bringing parents' attention to the development of writing and ways to promote it may give these parents practical tools to assist and advance their children.

The data collection method in the study contributes to the methodology of research on parental behavior in the context of early literacy. In previous studies, researchers videotaped parents supporting their own child's writing (e.g., Bindman et al., 2014). This approach is costly, and it only partly reflects parents' knowledge because parents see and interact solely with their children. Using the vignettes approach enables a broader understanding of parents' writing development knowledge. Moreover, as it is less costly, it allows access to more parents. This methodology can complement studies that deal with parent-child literacy activities.

To sum up, the study verifies that parents understand children's writing development beyond their reference to their own children. It indicates that the complexity of parents' understanding of writing development has a role in fostering their own children's literacy skills. Based on this, there is room to guide parents about writing skills and development.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by the Tel Aviv University Ethics Committee. The patients/participants provided their written informed consent to participate in this study.

References

- Aram, D. (2007). Sensitivity and consistency of maternal writing mediation to twin kindergartners. *Early Educ. Dev.* 18, 71–92. doi: 10.1080/10409280701274733
- Aram, D., and Bergman Deitcher, D. (in print). "Parents' beliefs regarding their children's early literacy surrounding a writing interaction and their relations to children's early literacy skills," in *Handbook of Visual-Motor Skills, Handwriting, and Spelling: Theory, Research, and Practice*. eds. Y. E. Ye, T. Inoue, U. Maurer and C. McBride (Routledge Taylor and Francis Publishing).
- Aram, D., and Besser-Biron, S. (2017). Parents' support during different writing tasks: a comparison between parents of precocious readers, preschoolers, and school-age children. *Read. Writ. Interdiscip. J.* 30, 363–386. doi: 10.1007/s11145-016-9680-6
- Aram, D., Cohen Meidan, I., and Deitcher, D. A. (2016). Comparison between homeschooled and formally schooled kindergartners: Children's early literacy, mothers' beliefs, and writing mediation. *Read. Psychol.* 37, 995–1024. doi: 10.1080/02702711.2016.1157537
- Aram, D., Korat, O., and Hassunha Arafat, S. (2013). The contribution of early home literacy activities to reading and writing in Arabic in first grade. *Read. Writ. Interdiscip. J.* 26, 1517–1536. doi: 10.1007/s11145-013-9430-y
- Aram, D., and Levin, I. (2016). Mother-child joint writing as a learning activity. in J. Perera, M. Aparici, E. Rosado and N. Salas (Eds.) and M. Joshi (Series Ed.). *Literacy Studies. Perspectives From Cognitive Neurosciences, Linguistics, Psychology, and Education*. Cham, Switzerland: Springer, 29–45.
- Bergman Deitcher, D., Aram, D., and Goldberg, A. (2021). Alphabet books: the nature of parents' shared reading between and across books. *J. Early Child. Lit.* 21, 127–147. doi: 10.1177/1468798418814103
- Bindman, S. W., Skibbe, L. E., Hindman, A. H., Aram, D., and Morrison, F. J. (2014). Parental writing support and preschoolers' early literacy, language, and fine motor skills. *Early Child. Res. Q.* 29, 614–624. doi: 10.1016/j.ecresq.2014.07.002
- Bingham, G. E., Gerde, H. K., Pikus, A. E., Rohloff, R., Quinn, M. F., Bowles, R. P., et al. (2022). Examining teachers' early writing knowledge and practices. *Read. Writ.* 35, 2201–2227. doi: 10.1007/s11145-022-10299-x
- Bossaert, G., Doumen, S., Buyse, E., and Verschuere, K. (2011). Predicting children's academic achievement after the transition to first grade: a two-year longitudinal study. *J. Appl. Dev. Psychol.* 32, 47–57. doi: 10.1016/j.appdev.2010.12.002
- Bowman, M., and Treiman, R. (2002). Relating print and speech: the effects of letter names and word position on reading and spelling performance. *J. Exp. Child Psychol.* 82, 305–340. doi: 10.1016/S0022-0965(02)00101-7
- Bronfenbrenner, U. (1979). *The Ecology of Human Development*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1996). *The Culture of Education*. Cambridge, MA: Harvard University Press.
- Caravolas, M., Hulme, C., and Snowling, M. J. (2001). The foundations of spelling ability: evidence from a 3-year longitudinal study. *J. Mem. Lang.* 45, 751–774. doi: 10.1006/jmla.2000.2785
- Cash, A. H., Cabell, S. Q., Hamre, B. K., DeCoster, J., and Pianta, R. C. (2015). Relating prekindergarten teacher beliefs and knowledge to children's language and literacy development. *Teach. Teach. Educ.* 48, 97–105. doi: 10.1016/j.tate.2015.02.003

Author contributions

DA conceived the presented idea and developed the assessment protocol, and wrote the first draft. RY organized and analyzed the transcriptions. DA and RY contributed to the statistical analyses and the interpretation of the results. All authors contributed to the article and approved the submitted version.

Acknowledgments

Warm thanks are extended to D. Bergman Ditcher for her editorial contribution and to G. Liberman for his methodological and statistical consultation. We thank the students who assisted in collecting the data.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

- Cho, J. R., and McBride, C. (2018). Maternal literate mediation of writing and Korean children's reading and writing across 1 year. *Read. Writ.* 31, 679–701. doi: 10.1007/s11145-017-9805-6
- Costa, H. C., Perdry, H., Soria, C., Pulgar, S., Cusin, F., and Dellatolas, G. (2013). Emergent literacy skills, behavior problems and familial antecedents of reading difficulties: a follow-up study of reading achievement from kindergarten to fifth grade. *Res. Dev. Disabil.* 34, 1018–1035. doi: 10.1016/j.ridd.2012.11.029
- Davis, B. J., Evans, M. A., and Reynolds, K. P. (2010). Child miscues and parental feedback during shared alphabet book reading and relations with child literacy skills. *Sci. Stud. Read.* 14, 341–364. doi: 10.1080/10888431003623504
- Del Boca, D., Piazzalunga, D., and Pronzato, C. (2018). The role of grandparenting in early childcare and child outcomes. *Rev. Econ. Househ.* 16, 477–512. doi: 10.1007/s11150-017-9379-8
- Dias, M. V., and Lima, L. (2018). Parents knowledge about the development of children aged 2 to 6 years. *Int. J. Dev. Educ. Psychol.* 4, 149–155. doi: 10.17060/jodaep.2018.n1.v4.1284
- Ducua, J. J., and Roza, H. A. (2018). Bilingual literacy: a systematic literature review about strategies to teach and learn two languages. *Theory Pract. Lang. Stud.* 8, 1307–1318. doi: 10.17507/tpls.0810.08
- Elias, N., Lemish, D., and Nimrod, G. (2020). "Grandparental mediation of children's digital media use," in *The Routledge companion to digital media and children*. eds. L. Green and D. Holloway (London, UK: Taylor & Francis), 96–107.
- Elias, N., Nimrod, G., and Lemish, D. (2019). The ultimate treat? Young children's media use under their grandparents' care. *J. Child. Media* 13, 472–483. doi: 10.1080/17482798.2019.1627228
- Hall, A. H., Simpson, A., Guo, Y., and Wang, S. (2015). Examining the effects of preschool writing instruction on emergent literacy skills: a systematic review of the literature. *Lit. Res. Instr.* 54, 115–134. doi: 10.1080/19388071.2014.991883
- Inoue, T., Georgiou, G. K., Parrila, R., and Kirby, J. R. (2018). Examining an extended home literacy model: the mediating roles of emergent literacy skills and reading fluency. *Sci. Stud. Read.* 22, 273–288. doi: 10.1080/10888438.2018.1435663
- Jones, C. D. O. (2015). Effects of writing instruction on kindergarten students' writing achievement: an experimental study. *J. Educ. Res.* 108, 35–44. doi: 10.1080/00220671.2013.836466
- Kalindi, S. C., McBride, C., and Dan, L. (2018). Early literacy among Zambian second graders: the role of adult mediation of word writing in Bemba. *Read. Res. Q.* 53, 7–27. doi: 10.1002/rrq.180
- Keels, M., and Raver, C. C. (2009). Early learning experiences and outcomes for children of US immigrant families: introduction to the special issue. *Early Child. Res. Q.* 24, 363–366. doi: 10.1016/j.jecresq.2009.09.002
- Kessler, B., Pollo, T. C., Treiman, R., and Cardoso-Martins, C. (2013). Frequency analyses of prephonological spellings as predictors of success in conventional spelling. *J. Learn. Disabil.* 46, 252–259. doi: 10.1177/0022219412449440
- Kim, Y. S., Al Otaiba, S., and Wanzek, J. (2015). Kindergarten predictors of third grade writing. *Learn. Individ. Differ.* 37, 27–37. doi: 10.1016/j.lindif.2014.11.009
- Korat, O. (2011). Mothers' and teachers' estimations of first graders' literacy level and their relation to the children's actual performance in different SES groups. *Educ. Treat. Child.* 34, 347–371. doi: 10.1353/etc.2011.0021
- Lee, J. A. C., and Al Otaiba, S. (2015). Socioeconomic and gender group differences in early literacy skills: a multiple-group confirmatory factor analysis approach. *Educ. Res. Eval.* 21, 40–59. doi: 10.1080/13803611.2015.1010545
- Levin, I., and Aram, D. (2013). Promoting early literacy via practicing invented spelling: a comparison of different mediation routines. *Read. Res. Q.* 48, 221–236. doi: 10.1002/rrq.48
- Levin, I., Aram, D., Tolchinsky, L., and McBride, C. (2013). Maternal mediation of writing and children's early spelling and reading: the Semitic abjad versus the European alphabet. *Writ. Sys. Res.* 5, 134–155. doi: 10.1080/17586801.2013.797335
- Levin, I., and Bus, A. G. (2003). How is emergent writing based on drawing? Analyses of children's products and their sorting by children and mothers. *Dev. Psychol.* 39, 891–905. doi: 10.1037/0012-1649.39.5.891
- Levin, I., and Ehri, L. C. (2009). Young children's ability to read and spell their own and classmates' names: the role of letter knowledge. *Sci. Stud. Read.* 13, 249–273. doi: 10.1080/10888430902851422
- Levin, I., Share, D. L., and Shatil, E. (1996). "A qualitative-quantitative study of preschool writing: its development and contribution to school literacy" in *The Science of Writing: Theories, Methods, Individual Differences, and Applications*. eds. C. M. Levy and S. Ransdell (Mahwah, NJ: Erlbaum), 271–293.
- Levin, I., Sverdlov, A., Abu-Rakva, S., Baav, T. S., Bukshpan, A., and Baron, A. (2007). *Tashtit likrat kriaa vektiva: Tochnit limudim legan hayladim [Infrastructure for reading and writing: A kindergarten curriculum]* (in Hebrew). Jerusalem, Israel: Ministry of Education.
- Leyva, D. (2019). How do low-income Chilean parents support their preschoolers' writing and math skills in a grocery game? *Early Educ. Dev.* 30, 114–130. doi: 10.1080/10409289.2018.1540250
- Lin, D., McBride-Chang, C., Aram, D., Shu, H., Levin, I., and Cho, J. (2012). Maternal mediation of word writing in Chinese across Hong Kong and Beijing. *J. Educ. Psychol.* 104, 121–137. doi: 10.1037/a0025383
- Lonigan, C. J., and Shanahan, T. (2009). Developing early literacy: report of the national early literacy panel: a scientific synthesis of early literacy development and implications for intervention. *Nat. Inst. Lit.* 1–9.
- Mäki, H. S., Voeten, M. J. M., Vauras, M. M. S., and Poskiparta, E. H. (2001). Predicting writing skill development with word recognition and preschool readiness skills. *Read. Writ.* 14, 643–672. doi: 10.1023/A:1012071514719
- National Early Literacy Panel (2008). *Developing early literacy: A scientific synthesis of early literacy development and implications for intervention*. Jessup, MD: National Institute for Literacy.
- Neumann, M. M. (2018). Maternal scaffolding of preschoolers' writing using tablet and paper-pencil tasks: relations with emergent literacy skills. *J. Res. Child. Educ.* 32, 67–80. doi: 10.1080/02568543.2017.1386740
- Neumann, M. M., Hood, M., and Neumann, D. L. (2009). The scaffolding of emergent literacy skills in the home environment: a case study. *Early Childhood Educ. J.* 36, 313–319. doi: 10.1007/s10643-008-0291-y
- OECD (2016). Fertility rate. Available at: <https://data.oecd.org/pop/fertility-rates.htm#indicator-chart>
- OECD (2021). Adult education level. Available at: <https://data.oecd.org/eduatt/adult-education-level.htm#indicator-chart>
- Olson, D. R. (1984). "See jumping! Some oral language antecedents of literacy" in *Awakening to Literacy*. eds. H. Goelman, A. Oberg and F. Smith (Portsmouth, NH: Heinemann Educational Books), 185–192.
- Pelatti, C. Y., Piasta, S. B., Justice, L. M., and O'Connell, A. (2014). Language-and literacy learning opportunities in early childhood classrooms: Children's typical experiences and within-classroom variability. *Early Child. Res. Q.* 29, 445–456. doi: 10.1016/j.jecresq.2014.05.004
- Pinto, G., Bigozzi, L., Vezzani, C., and Tarchi, C. (2016). Emergent literacy and reading acquisition: a longitudinal study from kindergarten to primary school. *Eur. J. Psychol. Educ.* 32, 571–587. doi: 10.1007/S10212-016-0314-9
- Puranik, C. S., and Lonigan, C. J. (2011). From scribbles to scrawl: preschool children's developing knowledge of written language. *Read. Writ.* 24, 567–589. doi: 10.1007/s11145-009-9220-8
- Puranik, C. S., Petscher, Y., and Lonigan, C. J. (2014). Learning to write letters: examination of student and letter factors. *J. Exp. Child Psychol.* 128, 152–170. doi: 10.1016/j.jecp.2014.07.009
- Puranik, C. S., Phillips, B. M., Lonigan, C. J., and Gibson, E. (2018). Home literacy practices and preschool children's emergent writing skills: an initial investigation. *Early Child. Res. Q.* 42, 228–238. doi: 10.1016/j.jecresq.2017.10.004
- Ravid, D. (2012). *Spelling Morphology: The Psycholinguistics of Hebrew Spelling*. New York: Springer.
- Ravid, D., and Shalom, T. (2012). *Standards of Evaluation of Writing in the Seventh Grade*. Jerusalem: Keren Yad Hanadiv. (In Hebrew)
- Ritchey, K. D. (2008). The building blocks of writing: learning to write letters and spell words. *Read. Writ. Interdiscip. J.* 21, 27–47. doi: 10.1007/s11145-007-9063-0
- Robins, S., Treiman, R., and Rosales, N. (2014). Letter knowledge in parent-child conversations. *Read. Writ.* 27, 407–429. doi: 10.1007/s11145-013-9450-7
- Rogoff, B. (1990). *Apprenticeship in Thinking: Cognitive Development in Social Context*. New York: Oxford University Press.
- Segal, A., and Martin-Chang, S. (2018). The apple doesn't fall from the tree: parents' reading-related knowledge and children's reading outcomes. *Read. Writ.* 31, 1231–1247. doi: 10.1007/s11145-018-9837-6
- Segal, A., and Martin-Chang, S. (2019). 'What does an O say when there's no E at the end?' Parents' reading-related knowledge and feedback during child-to-parent reading. *J. Res. Read.* 42, 349–370. doi: 10.1111/1467-9817.12272
- Segal, A., Martin-Chang, S., and Patel, S. (2021). "You wrote the right letter for the right sound!" parental feedback in writing contexts. *Merrill-Palmer Q.* 67, 329–359. doi: 10.13110/merrpalmquar1982.67.3.0329
- September, S. J., Rich, E. G., and Roman, N. V. (2016). The role of parenting styles and socio-economic status in parents' knowledge of child development. *Early Child Dev. Care* 186, 1060–1078. doi: 10.1080/03004430.2015.1076399
- Sherr, L., Roberts, K. J., Hothi, S., and Balchin, N. (2018). Never too old to learn: parenting interventions for grandparents—a systematic review. *Cogent Soc. Sci.* 4:1508627. doi: 10.1080/23311886.2018.1508627

- Skibbe, L. E., Bindman, S. W., Hindman, A. H., Aram, D., and Morrison, F. J. (2013). Longitudinal relations between parental writing support and preschoolers' language and literacy skills. *Read. Res. Q.* 48, 387–401. doi: 10.1002/rrq.55
- Sonnenschein, S., Stapleton, L. M., and Metzger, S. R. (2014). What parents know about how well their children are doing in school. *J. Educ. Res.* 17, 152–162. doi: 10.1080/00220671.2013.788987
- Sonnenschein, S., and Sun, S. (2017). Racial/ethnic differences in kindergartners' reading and math skills: parents' knowledge of children's development and home-based activities as mediators. *Infant Child Dev.* 26:5. doi: 10.1002/icd.2010
- Sverdlov, A., Aram, D., and Levin, I. (2014). Kindergarten teachers' literacy beliefs and self-reported practices: on the heels of a new national literacy curriculum. *Teach. Teach. Educ.* 39, 44–55. doi: 10.1016/j.tate.2013.12.004
- Tamis-LeMonda, C. S., Luo, R., McFadden, K. E., Bandel, E. T., and Vallotton, C. (2019). Early home learning environment predicts children's 5th grade academic skills. *Appl. Dev. Sci.* 23, 153–169. doi: 10.1080/10888691.2017.1345634
- Tolchinsky, L. (2003). *The Cradle of Culture and What Children Know About Writing and Numbers Before Being Taught*. Mahwah, NJ: Erlbaum.
- Tolchinsky, L. (2008). "The emergence of writing" in *Handbook of Writing Research*. eds. C. A. MacArthur, S. Graham and J. Fitzgerald (New York, NY: Guilford Press), 83–95.
- Tortorelli, L. S., Gerde, H. K., Rohloff, R., and Bingham, G. E. (2022). Ready, set, write: early learning standards for writing in the common core era. *Read. Res. Q.* 57, 729–752. doi: 10.1002/rrq.436
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.
- Wasik, B. H., and Herrmann, S. (Eds.) (2004). "Family literacy: history, concepts, services" in *Handbook of Family Literacy* (Mahwah, NJ: Lawrence Erlbaum), 23–42.
- Whitehurst, G. J., and Lonigan, C. J. (1998). Child development and emergent literacy. *Child Dev.* 69, 848–872.
- Winsler, A. (2003). Introduction to special issue: Vygotskian perspectives in early childhood education: translating ideas into classroom practice. *Early Educ. Dev.* 14, 253–270. doi: 10.1207/s15566935eed1403_1
- Zhang, C., and Quinn, M. F. (2020). Preschool children's interest in early writing activities and perceptions of writing experience. *Elem. Sch. J.* 121, 52–74. doi: 10.1086/709979

Appendix

Examples of complete analyses of parents' responses.

A. Examples of parents' responses to each of the writing levels accompanied by their scores:

1. Initial level: "Knows some of the letters, his direction is correct (right to left)." The scoring was: One point for letters (knows letters) and one point for the writing system (writing direction).
2. Intermediate level: "Recognizes the sounds, but there is no differentiation between letters that are similar in sounds. Lacks spacing and correct endings." The scoring was: Two points for orthography (homophonic letters, final letters), two points for phonology (references to sounds), and one point for the writing system (lack of spacing).
3. Advanced level: "Understands what a word is, makes spaces between words. Knows final letters. But has difficulty with the finals and some vowel letters. Manages to make beautiful separations. Knows the letters." The scoring was: One point for letters (knows the letters), two points for orthography (references to final letters and vowel letters), and two points for the writing system (references to the representation of words and to spacing).

B. Examples of parents' writing support recommendations to each of the writing levels accompanied by their scores:

1. Initial level: "In this case, I think there is a need to establish the letters and then words. I would start by writing only letters, cards of letters, and games where you have to choose letters." The scoring was four points for letters.
2. Intermediate level: "I would not teach if that's what he knows how to write. Just divide the last attached two words into two." The scoring was one point for the writing system (spacing between words) and a general recommendation not to teach the child.
3. Advanced level: "I would show him how to write mom and dad, teach final letters, vowels, and final N." The scoring was three points for orthography (vowel and final letters) and a general recommendation to give the child a model to copy.