



Preschool teachers' literacy beliefs, their evaluations of children's writing, and their recommendations for ways to support it

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Abstract

Preschool teachers' literacy-related beliefs and literacy knowledge relate to their educational practices and preschoolers' literacy skills. In this light, we explored how preschool teachers' beliefs regarding early literacy and its promotion predict their knowledge, reflected in how they evaluate three young children's writing products and their recommendations for ways to promote these children's writing, taking into consideration teacher and classroom variables (teacher training, preschool age group, and preschool SES). Participants were 110 teachers of preschoolers (aged 4–6). The teachers completed a literacy beliefs questionnaire. They were then presented with three products written by anonymous 5.5-year-old preschoolers, representing three writing levels: initial, intermediate, and advanced, and asked what each child knows about writing and recommendations for how they can be promoted. Responses were coded for the following aspects: letters, phonology, orthography, the writing system, and composing. Results showed that preschool teachers believe children's early literacy and its promotion are important, and that these beliefs predicted some of their evaluations and recommendations. In the evaluations, the teachers did not relate at all to composing. They related primarily to letters and phonology, both in their assessments of the children's knowledge and their recommendations for promoting the children's writing. At more advanced writing levels, they also related to Hebrew orthography and the writing system, and made recommendations regarding these aspects. The study suggests that preschool teachers should be encouraged to incorporate composing and more complex aspects of writing into their writing activities and instruction.

Keywords Early literacy · Early writing · Orthography · Teachers' beliefs · Writing assessment · Writing support

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Preschool teachers play an important role in supporting early literacy learning, especially through literacy interactions with preschoolers (e.g., Rowe et al., 2023; Yoshikawa et al., 2013). Moreover, preschool teachers' literacy-related beliefs, literacy knowledge, and consistent support in literacy interactions relate to educational practices and literacy among preschoolers (Cash et al., 2015; Piasta et al., 2020). At the same time, there is limited research regarding preschool teachers' beliefs and knowledge of early writing development and effective practices to promote children's writing skills. Further, as Phillips and Piasta note (2022), much of the existing research has emerged primarily from studies of elementary school teachers (e.g., McCutchen et al., 2009; Oakley, 2018; Troia & Graham, 2016), and studies of children's reading, as opposed to writing (Carlisle et al., 2009). To expand this knowledge base, the current study examined preschool teachers' literacy beliefs and their knowledge, reflected in their evaluations of children's early writing products and recommendations for ways to promote it.

Preschool teachers' beliefs regarding early literacy skills

Studies identify teachers' pedagogical beliefs as a driving force behind their educational decisions and practices (Buehl & Beck, 2015; Chen et al., 2024; Wieduwilt et al., 2023). In a meta-analysis, relations were found between preschool teachers' beliefs and their willingness to adopt programs or curricula in the preschool framework (Sandvik et al., 2014). Additionally, teachers' literacy beliefs appear to relate to the quantity and nature of literacy activities in the class (Hu et al., 2021; McMullen et al., 2006). For instance, Matsumoto and Tsuneda (2019) reported that many early childhood teachers in Japan believed in the natural development of children's early literacy and aligned their pedagogical practices with this approach. Other researchers found that while teachers believed that children are interested in and enjoy writing, they primarily provide the materials for writing without any kind of structured instruction or support (Gerde et al., 2019a). In the current study, we explored Israeli preschool teachers' beliefs relating to early literacy skills in Hebrew.

Various aspects have been shown to impact teachers' beliefs and/or their implementation of literacy practices, ranging from personal factors such as teacher training, to classroom level factors and broader educational system factors, such as curriculum standards (Buehl & Beck, 2015; Matsumoto & Tsuneda, 2019). For example, Schachter et al. (2016) found that teachers who held a degree relating specifically to early childhood was related to their literacy content knowledge. Buehl and Beck (2015) reported that teachers' competence may relate to alignment between beliefs and practice. Weadman et al. (2022) noted that a number of early career teachers did not feel that training provided them with sufficient knowledge to properly implement language and literacy practices. Classroom-level factors also have been shown to relate to teachers' beliefs and practices (Buehl & Beck, 2015; Piasta et al., 2022), and the structure of the educational system is meaningful for the characteristics of preschool teachers' literacy support (e.g., Davis et al., 2011). Hadley et al. (2022) found teachers' supportive language and literacy development practices varied by the size of the group (full class vs. small group) and that classroom characteristics such

as SES and dual language status were suggestive of differences in teachers' practices. Given the potential importance of classroom factors on teachers' beliefs and practices, we briefly describe the early educational framework in Israel, where the study took place, and how literacy is situated within this framework.

Early child education & curriculum

Children in Israel generally attend their local preschool, which determines the demographic and socioeconomic composition of the preschool, and usually learn in a class containing two age groups (e.g., 3- and 4-year-olds or 4- and 5-year-olds at the beginning of the year). Preschools, which are housed in buildings separate from elementary schools, emphasize physical activity, free play, and creative and social activities (Snapir et al., 2012). According to the Israeli Ministry of Education curriculum (2006), preschool focuses on cultivating children's linguistic competence (e.g., rich vocabulary, listening, and conversational skills), concepts of print (e.g., familiarity with literature, title, author), and alphabetic skills (e.g., alphabetic awareness, phonological awareness, motivation to engage in literacy activities).

Preschool language instruction is geared towards the Hebrew language. The Hebrew writing system is an *abjad* consonantal script. It consists of 22 consonant letters that are written from right to left. Five letters (*final letters*) have an allograph when placed as the final letter of a word (Ravid, 2012). Four letters can take the role of both consonant and vowel, however, these letters usually indicate a vowel. The syllable structure of words is mainly Consonant-Vowel and Consonant-Vowel-Consonant. Vowels are only partly represented by letters, and so words are relatively short and generally range between 2 and 6 letters.

Regarding writing, the preschool curriculum (Israel Ministry of Education, 2006) focuses on children learning what print is and how it works, and how to form and use letters. Curricular goals expect 3-4-year-olds to write pseudo letters; 4-5-year-olds to use random letters, write their own name, and integrate writing into play and everyday activities; and 5-6-year-olds to include some grapho-phonemic representations in writing (Aram & Ziv, 2018). Preschool teachers generally concentrate on incorporating writing into activities (e.g., children writing their names on their projects), and on letter formation and other transcription skills. Research indicated that Israeli preschool teachers considered promoting language and communication skills to be more important than working on early reading and writing skills (Sverdlov et al., 2014). Yet, writing is a challenging task and children often need guidance for its development (e.g., Aram & Bergman Deitcher, 2023).

Children's early writing & the need for support

Children's early writing encompasses conceptual knowledge -- understanding what print is and how it works, procedural knowledge -- transcription skills, and generative knowledge -- conveying meaning in writing, including composing (Puranik & Lonigan, 2014). Children's writing develops from scribbles to full orthographic writing

(Levin & Bus, 2003; Puranik & Lonigan, 2011; Schickedanz & Casbergue, 2009). They begin to write using symbols on the paper, after which, they begin to represent symbols or shapes that resemble letters. Following this, they begin to mix letters and letter-like shapes, and then they proceed to phonetic writing, spelling words based on the sounds heard in the spoken language, often starting with isolated and prominent sounds and moving towards accurate spelling (e.g., Bear et al., 2008; Puranik & Lonigan, 2011). Preschoolers also intentionally try to convey messages using written marks, a skill that develops throughout preschool (e.g., Rowe & Wilson, 2015). Preschool children's level of writing thus reflects their knowledge of letters, phonological awareness, orthographic knowledge, knowledge of the structure of the writing system, and how to convey meaning in writing (Bahr et al., 2012; Hall et al., 2015; Kaderavek et al., 2009; Molfese et al., 2011).

However, the knowledge needed for writing does not develop naturally without adult guidance, and consequently, support is important throughout writing development (Cabell et al., 2013; Puranik & Lonigan, 2011). Indeed, preschoolers who are exposed to literacy support that includes adaptive support in line with the children's writing abilities demonstrate a higher level of early literacy skills (Aram & Besser-Biron, 2016; Gerde et al., 2015), and better literacy achievements in elementary school (Guo et al., 2012; Hand et al., 2022; National Early Literacy Panel, 2009). More specifically, the quantity and nature of the scaffolding given to children relates to their writing and their understanding of the writing system (Bingham et al., 2017b), and is associated with their literacy outcomes (Levin & Aram, 2013; Albuquerque & Martins, 2021). The quantity and quality of writing support varies in preschool classrooms, and may be related to teachers' knowledge of children's writing.

Preschool teachers' knowledge of writing & writing support

Along with teachers' beliefs, teachers' knowledge is also found to relate to practice (e.g., Hindman & Wasik, 2011; Piasta et al., 2020). Beliefs are often considered to be more value-laden (e.g., is writing important in preschool), while knowledge is considered more factual in nature (Cash et al., 2015). In line with other researchers (e.g., Cash et al., 2015; Ottley et al., 2015; Schachter et al., 2016), we view beliefs and knowledge as separate constructs. Research suggests that preschool teachers may lack knowledge surrounding writing and how to support its development (Sverdlov & Aram, 2016; Bingham et al., 2017b; Gerde et al., 2015; Weadman et al., 2022). Hindman and Wasik (2008) found that preschool teachers had knowledge relating to promoting language and reading books, but there was greater variability in terms of knowledge of how to promote children's writing. Gerde et al. (2019a) similarly found that preschool teachers do not have enough clarity in promoting children's writing. Preschool teachers tend to dedicate minimal time in active support of preschoolers' writing development. For instance, Gerde et al. (2015) found that preschool teachers in 65 preschools provided a variety of writing materials, but often did not include writing activities in the preschool routine, direct the children's attention to writing, engage in joint writing, or suggest directed frameworks to promote the children's

writing. The current study focused on gaining more insight into Israeli preschool teachers' knowledge of early writing and how they might promote it.

Current study & research paradigm

In this study, we aimed to learn about: (1) preschool teachers' beliefs regarding preschoolers' literacy (letter knowledge, phonological awareness, early writing) and its promotion; (2) the way that preschool teachers evaluate preschoolers' writing at various levels; and, (3) how preschool teachers evaluate preschoolers' knowledge of the writing system and their recommendations to promote preschoolers' writing at different levels. To do so, we relied upon the Early Writing Knowledge Assessment ([EWKA] Bingham et al., 2022). This paradigm presents the teachers with three writing products by anonymous children that depict three different levels of writing, as detailed in the [Measures](#) section below. Based on this paradigm, the current study included writing products in Hebrew.

To deepen the exploration of preschool teachers' evaluations of the writing products and how their beliefs relate to these evaluations, we included the following variables that have been shown to relate to teachers' beliefs or practices: the teachers' training, as well as preschool age group and SES, two aspects that relate to the composition of the preschool class (Buehl & Beck, 2015; Piasta et al., 2022; Schachter et al., 2016).

Since we were unable to find prior studies examining Israeli preschool teachers' understanding of children's writing and how to promote it, the current study is exploratory, and we asked the following research questions without posing specific hypotheses:

- (a) To which aspects do preschool teachers refer when analyzing children's writing products and when recommending ways to promote the children's writing?
- (b) How do preschool teachers' literacy beliefs, along with personal and preschool classroom variables (preschool teachers' training, preschool age group, preschool SES) predict the way that they evaluate children's writing and recommend its promotion at different writing levels?

Method

Participants

The participants were 110 Israeli public preschool teachers. Each participant ran a preschool class that includes two age cohorts of children aged 4–6 (a cohort of 3–4-year-olds at the beginning of the year, or a cohort of 4–5-year-olds). On average, the teachers had 13 years of experience ($SD=10$, range 1–36). Most held an academic degree (77%) from a university or teachers' college, while the remainder held a non-academic teaching certificate (23%), which requires taking courses approved by the

Ministry of Education. According to the teachers' reports (informed by the details completed by each parent in the preschool), the children in the preschools who participated in the study were from a middle SES. This was based on maternal education, a measure accepted for establishing SES in Israel (Aarø et al., 2009). Approximately 46% of mothers of the preschoolers held an academic degree (at least a bachelor's degree), compared to 50.1% of adults in Israel (OECD, 2021).

Measures

Demographic questionnaire

The questionnaire included items relating to both the teacher and the class. In particular, teachers were asked about their training, the age group of the children in their preschool, and the education of a majority of the mothers of the children in the preschool.

Literacy beliefs questionnaire (Aram & Levin, 2016)

This 19-item questionnaire explored preschool teachers' beliefs regarding children's early literacy (letter knowledge, phonological awareness, early writing) and ways to promote it. The questionnaire related to: (a) Teachers' beliefs regarding preschoolers' literacy knowledge (e.g., "Preschoolers should know how to identify the opening sound in a word"; "Preschoolers are not supposed to engage in writing"), and (b) preschool teachers' beliefs regarding their role in promoting preschoolers' early literacy (e.g., "Preschool teachers should engage preschoolers in writing activities such as writing a birthday card"; "It is not recommended that preschool teachers work with children to divide words into their component sounds"). Respondents ranked their agreement with each item on a scale of 1=*I do not agree at all* to 5=*I totally agree*. The average across the items served as the teachers' literacy beliefs score. Higher scores indicated greater levels of agreement with preschoolers knowing more about and engaging in writing, and regarding preschool teachers' role in promoting preschoolers' early literacy. Inter-item reliability was Cronbach's $\alpha = 0.83$.

Writing products evaluation

Based on the EWKA (Bingham et al., 2022), the participating preschool teachers were presented with writing products of three anonymous children. The researchers asked preschool children (aged 5.5) from a middle SES to independently write an invitation to a birthday party. We chose three products that reflect three levels of writing development that are typical of Israeli preschool-aged children (see Fig. 1):

- (a) *Initial writing level*: The child knows a few letters and creates a mix of the writing system – letters from Hebrew, English, and symbols that are not letters; the child writes a few letters using mirror writing; the child begins to write in a line but there is no separation between words; there is no connection between the

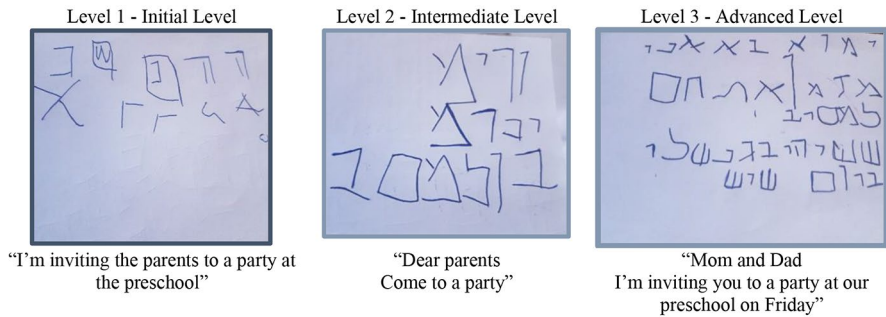


Fig. 1 Writing products showing three writing levels

child's verbal description of what they wrote ("I'm inviting the parents to a party in the preschool) and what's actually written.

- (b) *Intermediate level*: The child uses Hebrew letters that are identifiable, clear, and written from right to left; the child demonstrates some understanding of putting ideas into words, spacing between words, how to break up a word into its sounds; there are both consonants and some vowel letters, but there are letters that are omitted (primarily vowels); there is some connection between what the child says is written and the writing product.
- (c) *Advanced level*: The child uses both Hebrew consonants and vowels; the child knows how to write in a straight line from right to left and puts some separation between words; the child reflects the ability to divide words into their component sounds; there is a clear connection between what the child says is written and the writing product.

Participating teachers wrote responses to two questions appearing below each writing sample: (1) What does the child who wrote this know about writing? (2) If you were to sit with this child, how would you promote them and help them better understand writing? Each question was followed with four blank lines in which to write their response.

Coding of writing product evaluations (Aram & Yashar, 2023)

In line with various frameworks of writing, researchers often explore children's generative, procedural, and conceptual knowledge of writing (Puranik & Lonigan, 2014; Tortorelli et al., 2022). We used this as a basis for the coding scheme. For each writing product, we coded the teachers' *evaluation of writing* (i.e., what the child knows about writing) in terms of four aspects, which represent increasing levels of complexity from a basic level (letter knowledge, phonological awareness) through more complex skills (orthography, writing system), as well as their composing skills (Coker, 2013; Cutler & Graham, 2008; Rohloff et al. 2023). The coded categories were: (1) *Letters* – references to letter identification, use of symbols that are not letters, correct printing of letters, formation of the letters, and the like (e.g., "Here he made up a letter", "She knows how to write the letter 'bet' correctly"); (2) *phonology*

– references to division of words into sounds, awareness of syllables/sub-syllables/phonemes (e.g., “She hears the sounds in the words”, “He doesn’t pay attention to the last sound of the word”); (3) *orthography* – relating specifically to the Hebrew orthography, such as final letters, vowel letters, and homophonic letters (e.g., “The final letters are missing”, “She’s not using vowel letters”); (4) *writing system* – references to the writing system, such as writing in a line, the direction of writing, separation between words or sentences (e.g., “She separates the lines in writing”, “He did not put a space between the words”); (5) *composing* – references to children’s idea generation, or conveying meaning via written marks (e.g., “She included the important elements in an invitation”). The total number of references in each of the five categories served as the total for that category. Reliability between two judges (Ph.D. in Education) regarding 15% of the products showed 92%, 97%, 88%, 90%, and 100% absolute agreement for each of the categories (letters, phonology, writing, writing system, composing), respectively. Disagreements between raters were discussed until an agreement was reached.

The teachers’ *recommendations for writing support* were also coded with regard to the same aspects: (1) *Letters* – references to writing support that relates to letters (e.g., “I would play games with letters”, “He has to practice writing letters”); (2) *phonology* – references relating to support of awareness of the sounds of the word (e.g., “I would work with him on the sounds of the word”, “I would emphasize each letter according to its sound”); (3) *orthography* – recommendations for teaching elements specific to Hebrew orthography (e.g., “I would work on ‘hay’ at the end of words”, “I would teach him the letters that sound alike like ‘kuf/kaf’”); (4) *writing system* – recommendations for having the child pay attention to the mechanics of writing (e.g., “I would emphasize the need for spaces between words”, “I would teach him that each word is composed of a few letters together”); (5) *composing* – recommendations for how the child can compose the written product (e.g., “I would discuss what the child might want to include in an invitation”). The sum total number of references in each of the categories served as the total score for that category.

In addition to the above, we also counted the teachers’ references to *teacher-child joint exploration* of the writing products, such as, “I would sit with him and ask him if he thought it was written correctly” or, “I would have her look at her cubby and see how her name is written correctly and then compare that to what she wrote” (Segal et al., 2021). We scored the references to teacher-child joint exploration binarily (yes/no). Reliability between two judges regarding 15% of the products showed 95%, 100%, 95%, 88%, 100%, and 100% absolute agreement for the five categories (letters, phonology, orthography, writing system, composing, and teacher-child joint exploration). Disagreements between raters were discussed until an agreement was reached.

Procedure

Undergraduate students in early childhood education in two teachers’ colleges in Israel (in Haifa and Jerusalem) collected the data in the preschools in the middle of the school year (December-February). They gave the preschool teachers the demographic questionnaire and the beliefs questionnaire. After this, they presented the

preschool teachers with three pages, one for each writing product. On each page, beneath the writing product were two questions to which the teachers wrote their responses about what each child knows about writing and how they would promote that child's writing.

Data analysis

First, we conducted descriptive analyses of teachers' beliefs and of the teachers' evaluations of the three writing products. Preschool age group and SES were dichotomized in the analyses, with age group being older/younger preschool (older: 4-5-year-olds; younger: 3-4-year-olds at the beginning of the year), and SES as mothers with/without an academic degree. We then conducted Pearson correlations to examine the relations between teachers' assessments of children's knowledge and recommendations for support with teachers' literacy beliefs and background/classroom variables (teacher training, preschool age group and SES). We used a Generalized Estimating Equations (GEE) analysis (Hardin & Hilbe, 2013) with repeated measures to predict teachers' assessments of children's knowledge and recommendations based on their teachers' literacy beliefs and the writing level (initial, intermediate, advanced). This procedure allowed us to analyze count data, and accommodated a Poisson distribution, where standard deviations may exceed means (Hardin & Hilbe, 2013). Finally, we examined the correlations between the teachers' evaluations of the writing products and their recommendations for support and between their overall evaluations and recommendations with their literacy beliefs.

Results

Teachers' literacy beliefs

On average, teachers' literacy beliefs were ranked as 4.00 ($SD=0.53$) on a scale from 1 to 5. This demonstrates that the preschool teachers perceived children's early literacy and its promotion as important. They think that children should have some letter knowledge and phonological awareness, and engage in early writing, and that as preschool teachers, they should promote this knowledge.

Teachers' evaluations of writing products

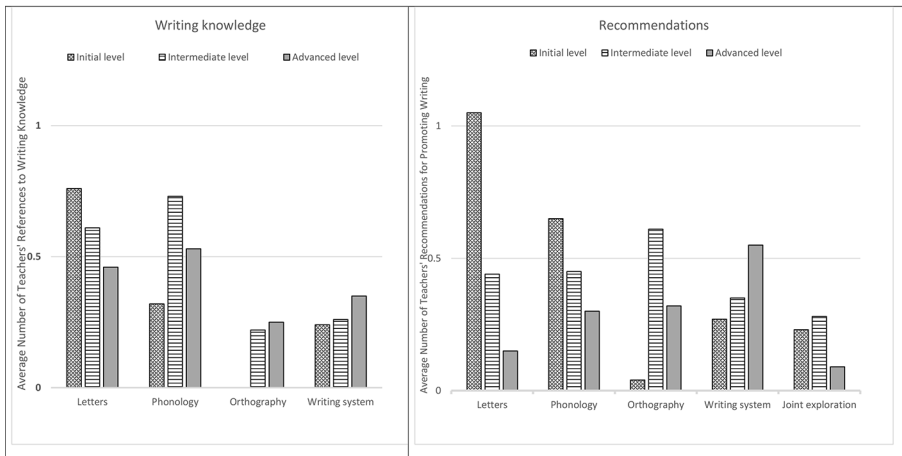
Results of the teachers' evaluations revealed that none of the teachers referenced composing in either their assessments of the child's writing knowledge, or in their recommendations for writing support. Consequently, this category was not included in any of the statistical analyses.

Table 1 and Fig. 2 present the teachers' references to four categories (letters, phonology, orthography, writing system) in their assessments of the child's writing knowledge and their recommendations for writing support for each of the three writing levels (initial, intermediate, advanced).

Table 1 Descriptives of preschool teachers' ($N=110$) evaluations of writing products for each writing level

Categories	Assessment of child's writing knowledge			Recommendations for writing support		
	Min	Max	Mean (SD)	Min	Max	Mean (SD)
Letters			0.61 (0.72)			0.54 (0.79)
Initial level	0	3	0.76 (0.74)	0	3	1.05 (0.86)
Intermediate level	0	3	0.61 (0.71)	0	4	0.44 (0.76)
Advanced level	0	3	0.46 (0.67)	0	2	0.15 (0.38)
Phonology			0.53 (0.69)			0.46 (0.70)
Initial level	0	3	0.32 (0.56)	0	3	0.65 (0.80)
Intermediate level	0	5	0.73 (0.82)	0	3	0.43 (0.67)
Advanced level	0	2	0.53 (0.62)	0	3	0.30 (0.60)
Orthography			0.23 (0.56)			0.32 (0.72)
Initial level	0	1	0.00 (0.00)	0	3	0.04 (0.30)
Intermediate level	0	2	0.22 (0.53)	0	4	0.61 (0.94)
Advanced level	0	3	0.25 (0.59)	0	3	0.32 (0.65)
Writing system			0.28 (0.59)			0.40 (0.69)
Initial level	0	3	0.24 (0.56)	0	3	0.27 (0.62)
Intermediate level	0	3	0.26 (0.59)	0	3	0.35 (0.66)
Advanced level	0	2	0.35 (0.63)	0	3	0.55 (0.76)
Teacher-child exploration						0.18 (0.03)
Initial level						0.23 (0.42)
Intermediate level						0.28 (0.45)
Advanced level						0.09 (0.29)

Note. Teacher-child exploration was a binary (yes/no) score. Means are the average number of references to that category across teachers

**Fig. 2** Teachers' assessments of children's writing knowledge & recommendations to promote them

In Table 1 and Fig. 2, it can be seen that overall, the teachers tended to reference and recommend letters and phonology the most when evaluating the initial writing level, and orthography and the writing system when evaluating the intermediate and advanced levels.

One-way ANOVAs examining differences in the preschool teachers' evaluations of the child's knowledge of the four categories (letters, phonology, orthography, writing system) indicated significant differences ($F(3, 327)=30.69, p<0.001$, partial $\eta^2 = 0.22$). An examination of the source of these differences indicated that beyond the writing level, the preschool teachers made significantly more references to letters and phonology compared to orthography and the writing system.

Similarly, one-way ANOVAs were conducted to examine differences in preschool teachers' recommendations for writing support and revealed significant differences ($F(3, 327)=5.25, p=.002$, partial $\eta^2 = 0.01$). Examining the sources of these differences indicated that beyond the writing level of the writing product, the preschool teachers made significantly more recommendations for children learning their letters compared to orthography and the writing system, with no other significant differences between categories. Thus, overall, beyond the writing level, the teachers referenced letters and phonology the most, and made recommendations to letters the most.

Correlations between teachers' assessments with their literacy beliefs and background/classroom variables

Table 2 presents the results of Pearson correlations between teachers' assessments of children's knowledge and recommendations for writing support with teachers' literacy beliefs and background/classroom variables. Results revealed that teachers' literacy beliefs significantly positively correlated with most of the teachers' assessment and recommendations, excluding recommendations for support in letters and phonology. That is, teachers who held stronger beliefs in children's literacy and their role in promoting it made more references to the various literacy aspects in their assessments

Table 2 Correlations between teachers' assessments and recommendations with demographic variables and teachers' ($N=110$) literacy beliefs

	Preschool age group	Preschool SES	Teacher training	Literacy beliefs
Assessment: Letters	-0.02	-0.16**	0.04	0.10*
Assessment: Phonology	0.04	0.01	0.04	0.18**
Assessment: Orthography	-0.06.	-0.01	0.04	0.11*
Assessment: Writing System	0.08	0.04	0.03	0.10*
Recommendations: Letters	0.07	0.00	0.07	0.09
Recommendations: Phonology	-0.02	-0.02	0.03	0.04
Recommendations: Orthography	0.06	0.02	0.01	0.23**
Recommendations: Writing system	0.03	-0.04	-0.01	0.30**
Teacher-child exploration	0.10*	0.01	-0.07	0.18**

Note. Preschool age group was dichotomized into older (4-5-year-olds) and younger (3-4-year-olds). Preschool SES was dichotomized based on mothers' education (with/without academic degree)

* $p < .05$, ** $p < .01$

and recommendations. Results also showed limited correlations between teachers' assessments and recommendations with background variables: Preschool SES was significantly negatively related to teachers' assessment of children's knowledge of letters ($r = -.16, p < .01$), meaning that teachers referenced knowledge of letters more when preschool SES was lower. Preschool age group significantly positively correlated with recommendations for teacher-child exploration ($r = .10, p < .05$), such that teachers recommended significantly more explorations of writing when they had an older age group. Given the limited correlations with background variables, only literacy beliefs was used in the GEE analyses detailed below.

Predicting teachers' evaluations of children's writing

Based on the results of the correlations, we conducted GEE analyses predicting the preschool teachers' assessment of children's knowledge of writing, by their literacy beliefs and the different levels of writing. Table 3 shows the results of these analyses.

Letters

As can be seen in Table 3, teachers' beliefs did not contribute significantly to the explanation of the variance in references to letters. Writing level explained variance in teachers' references to letters beyond the teachers' literacy beliefs. Bonferroni post-hoc tests revealed that teachers made significantly more references to letters for the initial level (*Marginal M* = 0.76, *SE* = 0.08) compared to the advanced level (*Marginal M* = 0.46, *SE* = 0.06). No significant differences were found between the initial and intermediate levels (*Marginal M* = 0.61, *SE* = 0.07) or between intermediate and advanced.

Phonology

As can be seen in Table 3, teachers' literacy beliefs significantly explained variance in teachers' references to phonology when assessing children's writing products, with stronger beliefs in early literacy predicting more references to phonological aspects

Table 3 Regression analyses predicting preschool teachers' assessment of children's writing knowledge & recommendations for promoting writing ($N = 110$)

	Letters			Phonology			Orthography			Writing system		
	χ^2	<i>B</i>	<i>p</i>	χ^2	<i>B</i>	<i>p</i>	χ^2	<i>B</i>	<i>p</i>	χ^2	<i>B</i>	<i>p</i>
Assessment of Children's Writing Knowledge												
Literacy beliefs	2.54	0.22	0.11	9.40	0.46	0.00	5.23	0.65	0.02	3.64	0.39	0.06
Writing level	7.97		0.02	16.04		<0.001	0.18		0.68	2.49		0.29
Recommendations for Promoting Children's Writing												
Literacy beliefs	3.01	0.25	0.08	0.56	0.12	0.45	26.26	1.08	<0.001	35.44	1.15	<0.001
Writing level	68.71		<0.001	14.15		<0.001	35.63		<0.001	11.66		0.00

when evaluating the writing products. Writing levels significantly contributed to the explanation of the variance in teachers' references to phonology beyond teachers' literacy beliefs. Bonferroni post-hoc tests revealed that there were significantly more references to phonology at the intermediate writing level (*Marginal M*=0.71, *SE*=0.08) compared to the initial writing level (*Marginal M*=0.32, *SE*=0.05). No other significant differences were apparent between the levels.

Orthography & writing system

Teachers' literacy beliefs significantly explained variance in the number of teachers' references to orthography, and trended towards significant ($p=.06$) with references to the writing system when assessing children's writing (see Table 3). Stronger beliefs concerning early literacy predicted more references to orthography in the writing products. No significant differences emerged based on the writing level, and writing level did not significantly explain the variance in references to orthography or the writing system.

Table 3 also shows the results of the GEE analysis predicting the preschool teachers' recommendations for promoting children's writing predicted by their literacy beliefs and the different levels of writing.

Letters

As can be seen in Table 3, writing level was the only variable that explained variance in the teachers' references to letters when giving recommendations for how to promote the children's writing. Bonferroni post-hoc tests revealed that the number of recommendations to letters was significantly higher for the initial level (*Marginal M*=1.04, *SE*=0.10) compared to the intermediate level (*Marginal M*=0.43, *SE*=0.06), and for the intermediate level compared to the advanced level (*Marginal M*=0.14, *SE*=0.04). That is, the more the writing level in the writing product reflected a child in the earlier stages of their writing development, the more the teacher recommended focusing on identification, sound, and use of letters.

Phonology

Regarding recommendations connected to phonology, writing level was the only variable that explained variance in the teachers' recommendations (see Table 3). Bonferroni post-hoc tests revealed that the number of recommendations to phonology was significantly higher for the initial level (*Marginal M*=0.64, *SE*=0.08) compared to the advanced level (*Marginal M*=0.30, *SE*=0.05), with no significant differences between the intermediate (*Marginal M*=0.43, *SE*=0.06) and advanced levels. That is, the teachers recommended greater focus on the aspects of the sounds of the language for a child in the earlier stages of their writing development.

Orthography

The preschool teachers' literacy beliefs was significant in explaining variance in their recommendations connected to Hebrew orthography, with stronger literacy beliefs associated with more references to Hebrew orthography (see Table 3). Additionally, writing level explained variance in the teachers' recommendations. Bonferroni post-hoc tests indicated that the number of recommendations relating to orthography were significantly greater at the intermediate level (*Marginal M*=0.52, *SE*=0.0) compared to both the initial (*Marginal M*=0.03, *SE*=0.02) and advanced levels (*Marginal M*=0.27, *SE*=0.05), and at the advanced level were significantly greater than the initial level. That is, teachers recommended focusing on aspects of Hebrew orthography the most for children who were at the intermediate stage of writing.

Writing system

Table 3 indicates that the preschool teachers' literacy beliefs explained variance in their recommendations connected to the writing system, with stronger literacy beliefs associated with more references to the writing system. Additionally, the writing level explained variance in the teachers' recommendations to this aspect. Bonferroni post-hoc tests indicated that the number of recommendations were significantly greater at the advanced level (*Marginal M*=0.47, *SE*=0.07) compared to the initial level (*Marginal M*=0.23, *SE*=0.04), with no significant differences between the other levels. In other words, the teachers recommended greater focus on aspects of the writing system for children who were at a more advanced stage of writing.

Teacher-child joint exploration

The preschool teachers' literacy beliefs explained variance in their recommendations for joint exploration of writing with the child (see Table 3), with stronger beliefs associated with more references to joint exploration. Additionally, the writing level explained variance in the teachers' recommendations to this aspect. Bonferroni post-hoc tests indicated that the number of recommendations to joint exploration were significantly greater at both the initial (*Marginal M*=0.21, *SE*=0.04) and intermediate levels (*Marginal M*=0.26, *SE*=0.05) compared to the advanced level (*Marginal M*=0.08, *SE*=0.03), with no significant differences between the initial and intermediate levels. That is, for children who were at a more advanced stage of writing, the teacher offered fewer recommendations for joint exploration.

Relations between teachers' evaluations of knowledge of writing and recommendations

Table 4 presents Pearson correlations between the preschool teachers' assessments of the children's knowledge of writing and their recommendations for how to promote the children's writing.

An examination of the correlations demonstrates that the way in which the teachers evaluated children's knowledge of each aspect (letters, phonology, orthography,

Table 4 Pearson correlations between teacher's ($N=110$) evaluations of children's knowledge of writing and recommendations for its promotion

Evaluations of children's knowledge of writing		Recommendations for promoting writing				
		Letters	Phonology	Orthography	Writing system	Joint exploration
Letters		0.36***	0.28***	0.12*	0.19	0.33***
Phonology		0.00	0.55***	0.57***	0.03	0.35***
Orthography		0.09	0.23*	0.25***	0.13	0.29***
Writing system		0.21***	0.01	0.11	0.43***	0.13

* $p < .05$, ** $p < .01$, *** $p < .001$

writing system) related to their recommendations to promote that aspect. That is, the more that the teachers related to specific aspects in their evaluation of children's knowledge of writing (e.g., orthography), the more recommendations they provided for that aspect. Recommendations for joint exploration with the child were significantly related to the evaluation of the child's knowledge of letters, phonology, and orthography.

Pearson correlations were run to examine the relations between the preschool teachers' beliefs and how they evaluated both children's knowledge of writing and their recommendations. Results showed that stronger beliefs in early literacy were associated with significantly more references to children's knowledge of writing ($r = .29$, $p < .05$), and with significantly more recommendations to promote writing ($r = .34$, $p < .01$).

Discussion

The current study explored preschool teachers' literacy beliefs and their knowledge of writing and writing support, which was reflected in their evaluations of writing products at different levels (initial/intermediate/advanced) and their recommendations for how to promote the children's writing. Results demonstrated that the preschool teachers' beliefs regarding the importance of early literacy and its promotion were high overall, and related to the number of references made to various aspects of writing and the number of recommendations for promoting writing. Of the writing aspects that we evaluated (letters, phonology, orthography, writing system, composing), the teachers did not reference composing at all. They primarily referenced and recommended promoting letters and phonology. They less often referenced and recommended the aspects of Hebrew-specific orthography (e.g., final letters) and the writing system (e.g., spacing between words). The teachers also distinguished between the writing levels, such that the more initial the writing level, the more they mentioned basic aspects of writing such as letter knowledge and phonological awareness. With more intermediate and advanced levels of writing, they made more references to orthography and the writing system. Similarly, in terms of the recommendations, the teachers took the writing level into consideration, with more complex recommendations associated with more advanced writing levels. Interestingly, the teachers infrequently recommended joint examination of the writing product to teach the children how they can promote their writing with more advanced writing

levels, even though the product demonstrated partially, but not fully, correct writing. Finally, strong correlations emerged between the number of references to a particular writing aspect when evaluating the knowledge of the children who wrote the writing products and the recommendations for ways to promote these children's writing.

Teachers' literacy beliefs and their relation to aspects of writing

The participating preschool teachers believe that literacy knowledge is important for preschool children, and they recognize their role in promoting young children's literacy skills. We found that stronger beliefs were associated with more references to aspects of writing that the teachers made when evaluating children's writing products, and to the number of their recommendations, beyond the writing level of the writing products. These findings seem to indicate that teachers' beliefs serve as a cognitive framework through which teachers perceive the learning process, and that guides their pedagogical approaches and decisions (Bingham & Hall-Kenyon, 2013; Gerde et al., 2019a; Hindman & Wasik, 2008). Recognition of the connection between preschool teachers' beliefs and their professional conduct is necessary for promoting a feeling of control, motivation, and relevance in their day-to-day work (Gerde et al., 2019a). Understanding this connection provides insights regarding the importance of the educators' personal perspectives in shaping the literacy development of young learners, while emphasizing the necessity of cultivating pedagogical beliefs as part of professional development (Lynch & Owston, 2015). Helping teachers become more aware of their literacy-related beliefs and how they relate to their educational practices may increase their support of children's early writing, which tends to be more limited (Gerde et al., 2019a; Scull et al., 2012).

Teachers' references to aspects of writing at different levels and how to promote them

While early writing frameworks conceived by researchers such as Puranik and Lonigan (2014) include composition as reflective of children's generative knowledge of writing, the preschool teachers did not relate at all to composing. At the same time, research indicates that preschool writing instruction tends to focus more on promoting skills that tap into conceptual and procedural knowledge, including the mechanics of writing and how to use print, and less relating to generative knowledge – i.e., composing (Bingham et al., 2017b; Gerde et al., 2019a). Importantly, composition is not considered within the preschool curriculum (Israel Ministry of Education, 2006). As such, it was not surprising that this aspect did not receive greater attention by the teachers. However, especially in light of studies indicating that preschool-aged children demonstrate various composition skills as part of gaining an understanding of the writing system and process (e.g., Quinn et al., 2021; Rowe et al., 2024), greater exposure to this aspect of writing with young children can be beneficial for Israeli preschool teachers, and should be supported by the curriculum (Bingham et al., 2018; Gerde et al., 2019b).

The preschool teachers seemed to distinguish between the initial, intermediate, and advanced writing levels, both in their assessments of the child's knowledge and

their recommendations. Regarding the initial level, the teachers focused primarily on letters and phonology. They thus appear to recognize these two aspects as important building blocks of the written language and as a basis for reading and writing acquisition (Levin & Ehri, 2009; Robins et al., 2014). The preschool teachers' references to phonology were significantly higher at the intermediate level compared to the initial level during their evaluation of the writing products. This seems to reflect teachers' consideration of phonological awareness as a second building block (after letters), and they may assume that the child who wrote using Hebrew letters has a basic understanding of the letters but needs some guidance towards understanding that each sound has a letter that represents it. It is also possible that the teachers relied primarily on letter knowledge and phonological awareness in their references regarding the writing products as there is evidence that activities relating to these aspects are the most common literacy activities in Israeli preschools (Sverdlov et al., 2014).

At all three writing levels, the preschool teachers made fewer references to the specifics of Hebrew orthography (final letters, vowel letters, homophonic letters, etc.), both when evaluating children's knowledge and when providing recommendations for promoting it. These orthography aspects are part of correct spelling, which is a more complex aspect of writing (Cutler & Graham, 2008), and appears to be perceived as such by the preschool teachers. This finding is similar to others who found that preschool and elementary school teachers do not tend to devote much attention to aspects of spelling from a recognition of its complexity, and the understanding that spelling is a learned skill that requires systematic practice (e.g., Treiman & Bourassa, 2000). It also corroborates Bingham et al.'s (2022) findings, using the same research paradigm, that teachers demonstrated less knowledge of spelling compared to handwriting and print concepts.

At the same time, the teachers did reference more complex aspects of writing (orthography and the writing system) for the intermediate and advanced level writing products. These teachers seem to recognize the importance of addressing more complex aspects such as Hebrew orthographic elements like final letters when responding to more advanced writing levels. The teachers in Bingham et al. (2022) focused on children's handwriting (such as letter formation) and writing concepts (such as linearity and directionality), whereas the teachers in the current study tended to mention these aspects (which we coded as "writing system") mostly when referring to the more advanced writing product. We believe that when looking at the intermediate, and even more so the advanced level writing product, that the teachers understood that the children recognize the basics of writing and show signs of some understanding letter-sound connections and spelling. Accordingly, the teachers recommended more complex ways to promote this aspect of writing that can help the more advanced writer to write a more organized invitation. This sensitivity to the children's writing levels strengthens previous findings that found that preschool teachers adapt their work and their learning goals to children's levels (Jordan & Sumrall, 2023).

As in Bingham et al. (2022), the teachers in the current study infrequently recommended joint exploration for the advanced writer. It seems that the teachers associated this kind of discussion around the writing output with lower-level writing compared to higher-level writers. Perhaps they believed that children with the kind of knowledge displayed in the initial level writing product require greater support, whereas

those at the more advanced level do not require this kind of discussion. Regarding the more advanced level product, many teachers noted that the child was writing at a preschool-appropriate level and they would not do anything to promote the child. The teachers seemed to have definitive views of what should be achieved in preschool and did not want to pressure children to engage in more “school-appropriate” writing. We would argue that each child can be promoted from where they are within the anticipated developmental range. Preschoolers who show high levels of writing, who receive proper and appropriate support, can continue to perfect, develop, and practice their writing and this skill will help them further in their academic path (Aram & Besser-Biron, 2016).

It is interesting to see that overall, beyond the writing level of the children, the teachers made the most references to letter knowledge and phonological awareness. This is in line with studies showing that preschool teachers spend less time working on orthography and the writing system (Pelatti et al., 2014). However, it is in contrast to findings that knowledge of writing and the writing system are important for both reading and writing acquisition (Levin & Aram, 2013; Jones, 2015). Although the Israeli preschool curriculum does not concentrate on early writing, it may be beneficial for professional development workshops to highlight the possibilities available to teachers to promote writing in the preschool setting (Tortorelli et al., 2022).

Relations between teachers’ evaluations & recommendations

We found that the more the preschool teachers referenced certain aspects in their evaluations of children’s knowledge based on the writing products, the more they included those aspects in their recommendations. These findings seem to indicate a consistent style in the approach to supporting children’s writing development. Similar findings were demonstrated in studies of parents (Aram et al., 2016, Aram & Besser-Biron, 2016; Aram & Yashar, 2023; Bingham et al., 2017a; Hindman & Morrison, 2012). The consistent style that we found indicates that the preschool teachers show increased awareness of, and attention to, certain aspects of the children’s writing, which will lead to a greater emphasis on those areas in their work with children. This result is also similar to that of Bingham et al. (2022), who found a relation between preschool teachers’ knowledge level of topics connected to writing, and pedagogical practices that they implement in the classroom.

Limitations & Future Research

The current study has a number of limitations. When assessing the teachers’ evaluations of the writing products, there were only two questions to which the teachers responded briefly in writing in the four lines below each question. We recommend interviewing the preschool teachers in a structured interview, which can provide richer, more detailed information. Additionally, while the teachers received three writing products that presented different writing levels, it would be interesting to explore their evaluations longitudinally with the same children to see whether their recommendations would change over time. Another limitation applies to the preschool SES, which was not as diverse as it could have been. Future studies should

endeavor to obtain a more diverse sample of SES. Lastly, we did not explore whether the teachers' knowledge and recommendations relate to their actual practice in the classroom. Future studies should endeavor to draw these connections and more deeply evaluate how teachers' beliefs and knowledge relate to classroom implementation.

Implications & conclusions

The study's results expand the literature on how preschool teachers' literacy beliefs relate to teachers' knowledge of children's writing development as reflected in their evaluations of preschoolers' actual written products. Stronger beliefs were associated with more references to aspects of writing and recommendations for its promotion. In light of this, we recommend developing preschool teachers' literacy beliefs. Beyond this, the results indicate strengthening preschool teachers' knowledge of writing development and support. In particular, we would recommend providing professional development regarding the importance of children's composing skills and encouraging teachers to engage in more complex aspects of writing such as Hebrew-specific orthography. This is particularly important in Israel, where preschool teachers tend to minimize these kinds of activities (Sverdlov et al., 2014). This can be accomplished at both the pre-service and in-service levels, which can arm the teachers with the knowledge and skills to understand the specific challenges and goals of each writing level, plan appropriate activities, provide explicit instruction, and offer meaningful feedback to support literacy development and growth.

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