



Write this way: examining teachers' supportive strategies to facilitate children's early writing in preschool

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Abstract

Writing is essential for communication in literate societies, and its successful acquisition and development is central to academic achievement. Beginning in early childhood, preschool-age children gradually develop componential skills within the domains of handwriting, spelling, and composing that ultimately enable them to translate thoughts and ideas into printed words to convey a message. Previous research has largely focused on teachers' practices in the general classroom context. In this study, we applied a fine-grained approach to examine preschool teachers' instructional practices for supporting children's early writing skills in a dyadic (i.e., one-on-one) context. The key aims were: (1) to describe teachers' supportive strategies for handwriting, spelling, and composing within a dyadic writing task; and (2) to determine whether teachers' supportive strategies varied according to the domain of writing they addressed. We asked thirty teacher–child dyads to complete a picture description writing task, and used a researcher-developed coding scheme to document teachers' supportive strategies. Descriptive analyses revealed that teachers frequently used directives, modeling, and closed-ended requests, and that there was wide variation in teachers' supportive strategies for writing. Moreover, teachers' instruction primarily focused on spelling and composing, and less so on handwriting. Accordingly, our findings help to complement and extend the extant literature regarding teachers' writing practices by providing a detailed description of teachers' strategies to facilitate children's writing and demonstrating the ways in which these strategies vary within a dyadic context.

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Introduction

Written language acquisition requires young children to develop the foundational skills necessary for linking spoken language to written language. Research in this area has revealed that young children begin to acquire nascent understandings about writing prior to formal schooling (Luria, 1977; Puranik & Lonigan, 2011; Tolchinsky, 2006). These early conceptions about written language arise from children's observations of experienced adults using writing in meaningful contexts (e.g., writing a grocery list, writing a letter) and from children's own experimentations with forming graphic marks (Bissex, 1980). As such, some experts consider learning to write as a *socially mediated* process in which adults engage children in collaborative interactions and provide individualized support during different writing tasks (Bodrova & Leong, 1998; Englert, 1992; Rowe, 2008b).

Historically, writing instruction in early childhood has been understudied when compared to reading instruction. Yet, in recent years, there has been an increasing interest in the role of early writing development for supporting the foundational skills that enable both advanced writing skills and reading comprehension (Cabell et al., 2014; Graham & Hebert, 2010; Hall et al., 2014, 2015; National Early Literacy Panel [NELP], 2008). Further, federal initiatives like Early Reading First and position statements released by national organizations have motivated widespread recognition for the importance of fostering early literacy, including writing, in early childhood (e.g., National Association for the Education of Young Children [NAEYC] and the National Association of Early Childhood Specialists in State Departments of Education, 2002). Since children's early writing experiences are largely mediated by adults, a closer examination of teacher–child interactions during writing activities can elucidate the various ways teachers attempt to facilitate early writing skills.

Teacher–child writing interactions, however, are generally limited in preschool classrooms (Gerde et al., 2015); thus, there have been few opportunities to explore teachers' mediation of children's writing in naturalistic settings. Accordingly, we aimed to advance the current literature by observing and identifying teachers' supportive strategies for handwriting, spelling, and composing during a dyadic (i.e., one-on-one) picture description writing task. We considered *supportive strategies* as verbal or nonverbal guidance teachers used to facilitate children's early writing attempts. Moreover, we use *preschool* in this article to refer specifically to the settings in which the study was conducted, which served children between 3 and 5. Examining teachers' enacted practices related to writing acquisition and development may offer insights into teachers' conceptions about how children learn to write and is, therefore, a necessary step in determining future directions for effective early writing instruction.

Domains of writing

Writing is a complex mode of communication that draws on linguistic and cognitive processes to record and organize information or express moods and sentiments (Bazerman et al., 2017; Flower & Hayes, 1981; Graham et al., 2005). Writing conventionally necessitates several key abilities for translating words in thought to print, including forming letters, spelling words, and arranging words into grammatical sentences. Although these advanced skills are beyond preschoolers' capabilities, focused instruction and support from adults often help to progress children's early writing behaviors towards conventional writing (Rowe, 2018; Tolchinsky, 2006). Central to this study are three domains recognized as key components of early writing development: handwriting, spelling, and composing (Kaderavek et al., 2009). *Handwriting* primarily concerns the ability to form letters fluently and legibly, including copying a written model (Graham, 2018). *Spelling* refers to the ability to produce the letters that represent sounds in words. As such, this domain relies largely on children's expanding knowledge of phonology, orthography, and print concepts, such as directionality (i.e., knowledge that print moves from left to right) and spacing between words (Cabell et al., 2013; Clay, 1975; Kaderavek et al., 2009). Together, handwriting and spelling (i.e., transcription skills) form the basis for fluent writing and enable writers to encode the sounds in spoken language to orthographic representations in written language. *Composing* is the process by which writers generate ideas and then translate those ideas into written text. This domain involves the integration of meaning with print to create a coherent "language representation" in writing (Kim & Schatschneider, 2017, p. 36). These three domains are interrelated such that the automatic and fluent transcription of words affords cognitive resources for composing (Jones & Christiansen, 1999; Puranik & Lonigan, 2011; Singer & Bashir, 2004). However, preschool-age children need not master transcription skills before learning to compose as early writing development involves concurrent growth in handwriting skills, orthographic knowledge, and composition (Cabell et al., 2013; Gerde et al., 2015; Kaderavek et al., 2009).

Early writing development

In early childhood, children produce their own writings in exploratory ways, experimenting with different marks and formations to approximate actual words. One of children's earliest forms of writing is scribble writing, which consists of loops and zigzags in a linear arrangement (i.e., left to right) resembling conventional text (Cabell et al., 2013). As children develop the awareness that "lines of print" comprise discrete units (Casbergue & Strickland, 2016, p. 92), their scribble writings eventually separate into distinct characters. However, children may not initially understand that writing is linked to spoken language and that written marks carry meaning (Kaderavek et al., 2009). A shift in children's understanding occurs at around age 3 when they begin to create specific forms to represent or "say" something. These lines of writing may not yet appear conventional, and so children must often verbalize what their marks mean (Casbergue & Strickland, 2016; Clay, 1975).

As children's skills progress, they begin to produce letter-like forms that essentially serve as building blocks for more conventional writing (Casbergue & Strickland, 2016). Children also begin to reproduce the letters found in their names, which is considered an important developmental milestone and has shown to be strongly associated with children's letter and print knowledge (Bloodgood, 1999; Cabell et al., 2009). Gradually, children begin to use the same forms in various combinations as their writing moves towards conventionality (Tolchinsky, 2006). Although precise and efficient letter formation should not be the sole focus of children's early writing experiences, supporting children's handwriting development can lead to greater handwriting fluency, thereby allowing children to devote more effort and concentration toward spelling and composing (Berninger & Amtmann, 2003; Graham, 2018).

When children grasp the alphabetic principle at around age 4 or 5, they begin to integrate their inchoate knowledge of print and meaning and use letters to approximate words in logical phonetic spellings or *invented spellings* (Cabell et al., 2013; Ouellette & Sénéchal, 2017). Preschoolers typically represent salient sounds in words first as they are easier to detect and perceive (Cabell et al., 2014). For example, a child may spell *cat* as KT. Children's ability to write with invented spellings is supported by growth in their phonological awareness skills and alphabet knowledge (Ehri & Roberts, 2006; Tolchinsky, 2006). Gradually, children come to understand that words expressed in oral language can be written down as messages (Clay, 1975) and that writing can be used for a variety of purposes to share ideas and express meaning (e.g., write a story, make a list; Gerde et al., 2012; Rowe, 2018).

Writing in early childhood

Although providing environmental writing supports in the classroom, such as a writing center or writing tools within play centers, is important for learning to write (Zhang et al., 2015), children require explicit and focused instruction to develop early skills related to handwriting, spelling, and composing (Graham et al., 2012; Guo et al., 2012; Tolchinsky, 2006; Zhang & Bingham, 2019). Essentially, children learn about writing from experienced adult writers (i.e., parents and teachers) who help to mediate the space between children's current skill level and potential skill level (Bodrova & Leong, 1998; Vygotsky, 1978). In addition, children's participation in writing-focused events with adults often shape their understanding of the features of written text and the various ways in which writing can be used to represent meaning (Rowe, 2008a). Therefore, teachers' supportive strategies during writing-focused events warrant important consideration given research evidence suggesting that teacher involvement in writing activities positively predicts children's literacy outcomes (Gerde et al., 2015; Hall et al., 2015; Neuman & Roskos, 1993).

Studies that have examined teachers' participation in early writing interactions have largely considered teachers' practices in the general classroom context. Findings from this body of work suggest that children have few opportunities to practice writing, and that teachers' writing practices tend to be limited in scope and focus (Bingham et al., 2017; Zhang et al., 2015). Common strategies that have been noted

in the literature include tracing or modeling letters or words for children to copy; helping to form letters using hand-over-hand support; dictating the letters or letter sounds to spell out words; and writing children's dictated sentences (Bingham et al., 2017; Gerde et al., 2019a, 2019b). Although it appears that teachers are in fact supporting children's early writing, their general approach to writing instruction often requires less effort from children and is tacit in nature, rarely drawing attention to what children are writing during writing-focused events (Gerde et al., 2015). Extant research shows that teachers do not often apply strategies that cognitively challenge children nor extend their understanding, such as describing how to form letters; helping children to form associations between letters and sounds; and drawing explicit connections between oral and written language (Bingham et al., 2017; Copp et al., 2019). Moreover, Bingham and colleagues (2017) examined teachers' writing instructional practices across the domains of handwriting, spelling, and composing and found that teachers placed greater instructional focus on children's handwriting and spelling skills, respectively, than composing. As such, researchers posit that there may be missed opportunities for teachers to support writing for meaning in preschool classrooms (Bingham et al., 2017; Gerde et al., 2015; Rowe, 2018).

Dyadic writing interactions

One critical area that has been studied to a lesser extent is what teachers say and do during dyadic writing-focused interactions. Arguably, when children are learning to write, they enter a "cognitive apprenticeship" with adults who, to varying degrees, provide instruction, modeling, and environmental supports to promote learning (Englert, 1992, p. 158; Neuman & Roskos, 1993; Rowe, 2008b). Research evidence suggests that adult support in joint writing tasks is positively related to children's outcomes, including letter-sound knowledge (Neumann et al., 2012) as well as decoding and fine motor skills (Bindman et al., 2014). Given that teachers are more likely to provide direct support and scaffolding tailored to a child's level in a dyadic context (e.g., Neuman & Roskos, 1993), "zooming in" on one-on-one writing interactions affords a closer look at the aspects of writing on which teachers tend to focus instruction and how they exchange information to support children's early conceptualizations of writing. As such, the current study addresses the need to better understand the nature of writing interactions that are occurring in preschool settings. Since occurrences of teachers and children writing together spontaneously are relatively infrequent (Gerde et al., 2015), we purposefully enhanced the opportunities for observing teachers' supportive strategies for writing in a dyadic setting by designating a writing task to represent a real-life context.

The literature on parents' mediation of writing offers important insights on adults' facilitation of children's writing attempts in dyadic contexts (e.g., Aram & Besser-Biron, 2017; Aram & Levin, 2001, 2004; Bindman et al., 2014; DeBaryshe et al., 1996; Neumann et al., 2012). Research evidence suggests that although parents, like teachers, focus primarily on aspects of transcription, there are qualitative differences in the ways that parents support and scaffold children's writing (Aram & Levin, 2001; DeBaryshe et al., 1996). DeBaryshe & colleagues (1996), for example, examined mothers' supportive strategies during a letter-writing activity

(i.e., a written message) with 5- and 6-year-old children. Key findings revealed that although most mothers assisted their children in producing a letter with conventional spellings, the degree to which the mothers emphasized other aspects of the letter (e.g., message length, common conventions for writing a letter) varied considerably according to children's print skill levels (DeBaryshe et al., 1996). In another study, Aram and Besser-Biron (2017) compared parent-child interactions according to children's abilities and different writing tasks. Sixty parents were assigned into one of three groups: (1) precocious readers in preschool (PR); (2) same-age preschoolers not yet reading (SA); and (3) school-age children matched by the reading level of the precocious readers (SRL). Parents helped their children to complete three writing tasks that varied in structure and complexity (i.e., word writing, birthday invitation, speech bubbles for a wordless picture book). Results showed significant differences in parent support according to group and task. In particular, compared to the SA parents, PR parents tended to provide support that was considered more cognitively challenging for children (e.g., encouraging children to write letters independently, dictating letter sounds and asking children to name the letters). Results also showed that all parents, on average, used more elaborative talk that encouraged reasoning, imagining, and predicting when helping their children to write during the book task than in the word writing and invitation tasks (Aram & Besser-Biron, 2017). Accordingly, findings from the parent literature suggest that there may be conditional factors that influence the way adults facilitate children's writing. In this study, we were specifically interested in exploring the patterns of strategy use within a dyadic writing task that was considered open-ended as teachers and children were free to decide what to write.

Teachers' mediation of writing

Compared to the parent literature, fewer studies have examined the dyadic interaction between teachers and children during writing-focused events. In particular, Rowe (2008a, 2008b) conducted an extensive ethnographic study of adult-child interactions at a preschool writing table. Findings from this work highlight the important role that teachers play as "cultural models [in] learning-to-write events" (Rowe, 2008b, p. 425). Interestingly, Rowe (2008b) observed that though a number of children were often present at the writing table, most talk about writing occurred when adults engaged children in dyadic interactions. Essentially, the comments and questions provided by adults during writing-focused interactions help to establish "social contracts for writing," which entail children's understanding of how writing is defined and used by the participants in a given culture (Rowe, 2008a). Although these findings provide valuable information, much of this work was focused on 2-year-old children and did not necessarily examine adults' interactive approaches across the key domains of writing specifically. In addition, the data collected represented only one preschool classroom. Thus, further investigation concerning teachers' writing practices for children between the ages of 3 and 5 is needed given that children gradually move toward more conventional forms of writing as they get older and progress in their early literacy skills, such as phonological awareness and letter knowledge (Tolchinsky, 2006).

Furthermore, several research-to-practice guides recommend that teachers not only foster children's transcription skills, but also help children to understand how writing can be used to express and convey meaning (e.g., Gerde et al., 2012; Quinn et al., 2016). However, extant research examining the extent to which teachers support the writing domains across different classroom activities has found that handwriting continues to be the primary focus of teachers' classroom instruction (Bingham et al., 2017; Gerde et al., 2019a, 2019b). Notably, Bingham & colleagues (2017) observed that although teachers' supports for composing were relatively infrequent in their study, those who provided composing mediation tended to have children with "better handwriting and invented spelling skills" (p. 42), suggesting that the focus of teachers' writing instruction may depend, to some degree, on children's developmental levels. Moreover, studies of parent-child writing interactions show that parents provide support and scaffolding for both the transcription and composing aspects of writing (Aram & Besser-Biron, 2017; Burns & Casbergue, 1992; DeBaryshe et al., 1996). Therefore, the present study afforded a closer look at how teachers provided guidance within and across the domains of handwriting, spelling and composing in a single designated writing task.

The current study

Given the increasing focus on early writing as an important component of early literacy, there is a critical need to understand the ways in which teachers support preschool-age children's early writing development. Although prior studies have largely examined teachers' practices on a global classroom scale, there remains a paucity of research investigating if and how teachers support the multiple domains of writing when working with children one-on-one. In this study, we aimed to complement and extend the literature in two ways. First, we focused on a context that has scarcely been explored with teachers; namely, a dyadic setting to observe teachers' supportive strategies during a writing task designed to represent a real-life activity in the preschool classroom. Second, we applied a fine-grained approach to identify teachers' supportive strategies for handwriting, spelling, and composing in this designated dyadic context. We focused on a picture description writing task specifically given research evidence suggesting that open-ended writing tasks afford more opportunities to observe teachers' strategies across the three domains of writing, whereas close-ended writing tasks (e.g., word writing) tend to yield a greater focus on transcription skills (Aram & Besser-Biron, 2017). Moreover, we used a novel observational measure to directly observe and document how teachers supported preschool-age children's early writing attempts, regardless of the conventionality of children's writing. Specifically, the present study addressed the following questions:

1. What supportive strategies do teachers use to facilitate preschool-age children's early writing within a dyadic writing task?
2. Do teachers' use of supportive strategies for writing vary by domain within a dyadic writing task? If so, what strategies do teachers use to support handwriting, spelling, and composing? Given current literature suggesting that teachers'

classroom instructional focus tends to be on aspects of transcription (Bingham et al., 2017), we hypothesized that teachers will use more supportive strategies to facilitate transcription skills (i.e., handwriting and spelling) than composing in a teacher–child dyadic context.

Method

Participants

Participants in this study comprised 30 teacher–child dyads from 19 early childcare and preschool centers in one Florida county (i.e., Early Head Start and Head Start, private preschools, and faith-based centers). Centers were invited to participate if they served children between the ages of 3 and 5. Individual teachers were recruited through center directors who distributed information about the study via emails, flyers, and in-person meetings. Teachers who expressed interest were contacted by the first author to review the study procedures and obtain written consent. Subsequently, all children in participating teachers' classrooms were recruited through invitational letters and consent packets to parents. Children were considered eligible for inclusion if they met the following criteria: (1) were 3- to 5-years-old; (2) had no known hearing and/or visual impairments; and (3) were considered to be proficient in English based on teachers' reports. In each classroom, one child was randomly selected from the pool of returned consent forms to pair with the teacher for the study. In the seven classrooms where consent was returned for only one child, the child was paired with the teacher by default.

The participating centers were located in neighborhoods where the average household income ranged from \$54,549 to \$130,157 ($M = \$77,062$, $SD = \$24,978$). All participating teachers were female and ranged in age from 23 to 76 years ($M = 37.52$, $SD = 12.44$). Teachers were 50.0% White, 43.3% African American, 3.3% Asian, and 3.3% mixed race. Teachers' years of experience in teaching preschool ranged from 1 to 50 years ($M = 9.73$, $SD = 8.96$). In addition, teachers' educational backgrounds varied with 10.0% achieving a high school diploma, 16.7% completing some college, 26.7% achieving an Associate's degree, 26.7% achieving a Bachelor's degree, and 20.0% achieving a Master's degree. Participating children ranged in age from 36 to 66 months ($M = 53.30$, $SD = 9.25$). Of the 30 children, 18 were female (60%). Information on children's race and ethnicity was not collected. Moreover, on the initial interview form, teachers were asked to indicate how they fostered early writing in the classroom. Among the activities self-reported by individual teachers were name writing ($n = 7$), picture dictation ($n = 8$), activities to improve pencil grip or fine motor skills ($n = 10$), journal writing ($n = 11$), and tracing activities ($n = 14$).

Procedures

All participants took part in a larger project that was carried out over three separate observations for each teacher in the spring of the school year. All observations were conducted by the first author and scheduled a week in advance with teachers.

Observations lasted anywhere between 30 min to an hour, which included the setup of recording equipment and materials. The materials comprised several sheets of lined A4 paper and a set of pencils, pens, and markers. For each observation, the first author assigned teacher–child dyads to complete one of three writing tasks (i.e., picture description, grocery list, birthday invitation). The order of the writing tasks was randomized for each dyad. At the start of the study, teachers were told the three writing tasks they would be asked to complete but were not provided the specific writing prompt until the day of the scheduled observation. The current study involved data from the picture description writing task only.

For the picture description writing task, teachers were instructed to help children write phrases or sentences to describe a set of three pictures (see Online Resource 1). This task was designed to be open-ended and involve a meaning-driven language function (i.e., to tell a story about the pictures), which was similar to writing tasks that have been used in prior research examining adults' mediation of early writing (e.g., Aram & Besser-Biron, 2017). For this study, we used a set of three pictures from the Story Retell Task on the Emerging Literacy & Language Assessment (ELLA; Wiig et al., 2006), which depicted a family's day at the beach. Teachers were not directed on what strategies to use nor were they restricted in length of time to complete the task. Instead, they were encouraged to solicit children's ideas for what to write and to provide guidance and support as needed to complete the task. All observations were video recorded and later analyzed using a researcher-developed coding scheme for occurrences of teacher mediation of writing.

Teachers' mediation of writing

Video observations of the writing task were analyzed using a novel coding scheme to identify teachers' supportive strategies (i.e., verbal or nonverbal guidance) for handwriting, spelling, and composing. Both deductive and inductive approaches were employed to develop the coding scheme. We started with a set of a priori codes derived from extant research examining the types of facilitative techniques used to support children's early writing skills (e.g., Aram & Besser-Biron, 2017; Bingham et al., 2017). The codes were applied to a sample set of video observations that were not included in the data analysis for the present study. A continuous and iterative process followed in which new codes emerged and existing codes were revised and refined. Subsequently, we compiled all codes together in a coding manual that provided definitions and examples. Occurrences of teachers providing writing mediation were characterized according to the domain of writing being addressed (i.e., handwriting, spelling, composing) and the type of instructional strategy teachers used. Ten types of supportive strategies were coded: *modeling*, *directive*, *provide choices*, *closed-ended request*, *open-ended request*, *explain/elaborate*, *review*, *trace*, *child dictation*, and *task structuring* (see Tables 1 and 2 for descriptions and examples). This method of capturing both domain and strategy allowed us to closely examine how teachers supported each key component of early writing development. The following section discusses how the codes were applied to the observations analyzed for this study.

Data coding

For each observation, coding proceeded in two phases and was recorded on an Excel-based coding sheet. The first phase focused on identifying occurrences of writing mediation and determining the domain of writing addressed in each occurrence. An occurrence of writing mediation happened when a teacher used supportive strategies to address one or more domains of writing. The end of an occurrence was marked by one of the following: (1) the child stating a comment or question following the teacher's statement; (2) the child performing an action following the teacher's prompt; or (3) a significant pause between two occurrences. Occurrences of teacher support that were not coded included teacher talk and behaviors aimed at regulating the child's behavior or maintaining the child's attention, and talk that was not directly related to the writing task or writing in general (e.g., references to the child's personal experience or other classroom activities). To identify occurrences of writing mediation, each observation was first divided into 30-s intervals from the moment when the writing activity started to when the activity was completed. Coders viewed each 30-s interval and identified occurrences in which teachers addressed aspects related to writing by marking the start and end time of each occurrence on the coding sheet.

As coders identified occurrences of writing mediation, they also determined the domain of writing teachers addressed in each occurrence. Specifically, occurrences of handwriting mediation addressed the formation of letters and drew attention to features of letters, such as shape and size. Occurrences of spelling mediation primarily addressed the orthographic encoding of sounds to letters or the segmenting of words into individual sounds or syllables. In addition, spelling mediation drew attention to early print concepts, such as directionality (i.e., writing from left to right), and spacing between words. Occurrences of composing mediation addressed word choice and syntax, sentence mechanics (e.g., capitalization, punctuation), or the purpose of the writing task (e.g., to describe pictures or tell a story about the pictures). Lastly, an "other" category was included for occurrences of writing mediation that were related to the writing task more broadly but did not necessarily address a specific domain (e.g., the teacher outlines the steps to completing the activity). It was possible for teachers to address more than one domain within a single occurrence of writing mediation. For example, a teacher may demonstrate writing the letter B while saying, "This letter makes the /b-b/ sound." This occurrence of writing mediation would be coded for both handwriting and spelling.

The second phase of coding focused on identifying the supportive strategies teachers used within occurrences of writing mediation. All strategies could be applied by teachers to support handwriting, spelling, or composing, except for *trace*, *child dictation*, and *task structuring*. Trace only applied to occurrences in which teachers addressed handwriting. Child dictation and task structuring applied to occurrences in which teachers supported children's writing without directly addressing a specific domain. As such, these strategies tended to be coded in occurrences identified in the "other" category as they did not easily align with the three domains of writing. It was possible for teachers to apply two or more strategies simultaneously within the same segment. For example, the teacher may say, "Do you want to

Table 1 Descriptions and teacher examples of supportive strategies for each domain of writing

Description	Handwriting	Spelling	Composing
Modeling Demonstrates a process related to a domain of writing	Demonstrates how to write the letter P for the child to copy	Verbally segments the sequence of sounds in a word: <i>Listen, /s/-/h/-/n/</i>	States a sentence to write down: <i>We can write, "The kids are swimming."</i>
Directive Directs or instructs the child to carry out a specific action or task	While child is writing the letter Y, says: <i>Make a long tail for the Y</i>	After child writes s for swim, says: <i>The next letter is w</i>	After child writes the word <i>the</i> , teacher says: <i>The next word is kids</i>
Provide Choices Provides the child with options to carry out a specific action or task	Says: <i>Do you want to write a lowercase a or an uppercase A?</i> ^a	Says: <i>Does P make a /p/ sound or a /h/ sound?</i>	Says: <i>Do you want to write "mom" or "mommy"?</i>
Close-Ended Request Asks a question that can be sufficiently answered in one word	Says: <i>Do you know what the letter V looks like?</i>	Says: <i>What's the first sound you hear in beach?</i>	Says: <i>What is the mom doing?</i>
Open-Ended Request Asks a question that requires more than one word to sufficiently answer	Says: <i>How do you write the letter H?</i> ^a	Says: <i>How would we start to write picnic?</i>	Says: <i>What is happening in this picture?</i>
Explain/Elaborate Provides information to deepen or extend the child's understanding	While demonstrating a lowercase e, says: <i>You go around like this and put a line through it</i>	Says: <i>There's a vowel in the word kids</i>	Says: <i>We put a period at the end of the sentence, so we know that sentence is done</i>
Review Prompts the child to assess, examine, or appraise what was written	After child writes the letter g, teacher says: <i>I like that long tail you made for your g</i>	After child writes water, says: <i>You just wrote the word water</i>	After child writes a sentence, says: <i>Let's read what you wrote. "They are having a picnic."</i>

^aHypothetical example as this was not observed in the data

Table 2 Description and teacher examples of other supportive strategies for writing

Description	Example
Trace ^a Prompts the child to trace over a letter, word, or sentence written by the teacher	Writes the letter <i>M</i> on the child's paper and says: <i>Can you trace this for me?</i>
Child dictation Writes down the child's dictated words or sentences without addressing a writing domain	Writes the child's words as the child says: <i>The mom is putting sunscreen on the kids</i>
Task structuring States a comment or asks a question regarding the steps to completing the writing task with the goal to guide and regulate the child's participation	Before starting the writing task, says: <i>We'll take turns writing the words in our sentence</i>

^aThis strategy is specific to handwriting only

write, 'They are running in the water' or 'The kids are running in the water'?'. This occurrence of writing mediation would be coded as modeling and providing choices under the domain of composing.

Reliability

The first author served as the lead coder, coding all data, and two research assistants (RAs), who were undergraduate students in Communication Science and Disorders, served as double coders, coding occurrences of writing mediation and writing domain (RA1) and supportive strategies (RA2). Both RAs initially received training and practice using a sample set of observations. Subsequently, the coders were required to independently complete four master-coded observations and achieve a minimum of 80% agreement with the lead coder on each observation. The observations were randomly selected and reviewed by the first author to ensure that they were representative of the actual data. For observations on which coders were unable to achieve 80% accuracy, coders met with the first author to resolve disagreements until the minimum accuracy was reached.

Subsequently, 10% of the data (three observations) were randomly selected to be double-coded. Interrater reliability was determined using Cohen's kappa (k), which provided an index for agreement between two independent raters accounting for the expected agreement by chance. Kappa values can range from -1 to 1, with -1 indicating agreement that is less than chance (i.e., systematic disagreement between observers), 0 indicating random agreement, and 1 indicating agreement above chance (Hallgren, 2012). Guidelines for interpreting kappa values suggest that values between 0.61 and 0.80 indicate substantial agreement, and values between 0.81 and 1.00 indicate near perfect agreement (Landis & Koch, 1977). Across the three observations that were double-coded, reliability analyses revealed a kappa value of 0.76 for occurrences of writing mediation. For domains, the kappa values were 0.93 for handwriting, 0.96 for spelling, 0.97 for composing, and 0.95 for other. For supportive strategies, the kappa values were 0.86 for modeling, 0.92 for directive,

0.66 for provide choices, 0.95 for close-ended request, 0.85 for open-ended request, 0.78 for explain/elaborate, 0.91 for review, and 1.00 for trace, dictation, and task structuring.

Results

Research question 1: teachers' supportive strategies for writing

To describe teachers' supportive strategies, we used descriptive analyses to examine how often writing mediation occurred. A total of 4,067 occurrences of writing mediation were observed across the whole sample ($M=135.87$; $SD=78.86$; range 12–303). Table 3 also shows the percentage of teachers in the sample who utilized each strategy at least once during the writing task. Over 80% of the teachers in the sample used directive, open-ended request, explain/elaborate, and review at least once to facilitate children's writing overall (Table 3). Only modeling and closed-ended request were used by all 30 teachers. With regard to the number of unique strategies, individual teachers on average applied 8.20 different strategies out of a possible ten types ($SD=1.35$; range 5–10).

Teachers' average duration for completing the writing task was 12.12 min, though the variability among teachers was substantial ($SD=5.22$; range 2.20–21.52). Rate was calculated by dividing the frequency of writing mediation by the total time to complete the writing task, thereby reflecting the number of occurrences per minute in which a teacher provided writing mediation. Accordingly, the average rate of writing mediation was approximately 10.88 occurrences per minute ($SD=4.30$; range 3.21–22.28).

Table 3 Percentage of teachers who used each supportive strategy overall and by domain

	Overall ($n=30$)	Handwriting ($n=24$) ^b	Spelling ($n=25$) ^b	Composing ($n=30$) ^b
Modeling	100.0	87.5	84.0	90.0
Directive	86.7	83.3	100.0	80.0
Provide choices	46.7	25.0	20.0	36.7
Close-Ended request	100.0	54.2	84.0	96.7
Open-Ended request	96.7	25.0	28.0	90.0
Explain/Elaborate	86.7	70.8	92.0	66.7
Review	93.3	50.0	84.0	83.3
Trace ^a	30.0	–	–	–
Child dictation ^a	53.3	–	–	–
Task structuring ^a	73.3	–	–	–

^aPercentages for trace, child dictation, and task structuring by domain are not reported as these three strategies were excluded from all domain-related analyses

^bReflects the number of teachers from the total sample of 30 who used strategies to address the given domain of writing

Regarding the frequency of each supportive strategy, teachers often used directive ($M=52.87$), modeling ($M=28.00$), closed-ended request ($M=19.17$), explain/elaborate ($M=12.67$), and review ($M=12.40$) to support children's writing overall (Table 4). Furthermore, proportions of strategy use were examined in two ways: (1) what an individual teacher did in a single observation (Table 5); and (2) an average across all teachers (Table 6). For writing overall, directive, closed-ended request, and modeling generally comprised the largest proportions of individual teachers' total occurrences of writing mediation, accounting for 33%, 19%, and 18%, respectively (Table 5). All other strategies each comprised less than 10% of individual teachers' total occurrences of writing mediation. When proportions of strategy use were examined across all teachers, similar trends were observed such that the same three strategies – directive (39%), modeling (21%), and close-ended request (14%), respectively – accounted for the largest proportions of all occurrences of writing mediation (Table 6).

Research question 2: teachers' strategies to support handwriting, spelling and composing

To examine how teachers' supportive strategies varied by domain, teachers' use of supportive strategies per domain of writing was first examined. Occurrences of trace, child dictation and task structuring were not included as they did not easily align with all three domains of writing. With regard to individual teachers' occurrences of writing mediation, approximately 41% ($SD=23.1$; range 0–78) was related to spelling, 39% ($SD=29.0$; range 6–100) was related to composing, and 20% ($SD=17.6$; range 0–67) was related to handwriting. Contrastingly, the trends in teachers' occurrences of writing mediation across the sample show that approximately 48% were related to spelling, 28% were related to composing, and 25% were related to handwriting. Essentially, the proportions of spelling and composing mediation were nearly equivalent within individual teachers but discrepant when looking across the entire sample. This difference may be attributed to three teachers who exclusively focused their support on aspects of composing by soliciting children's ideas for what to write and then writing children's dictated sentences. Trends in teachers' strategy use within each domain are further discussed in turn.

Handwriting

Across the sample, 24 of 30 teachers supported handwriting. A total of 965 occurrences of handwriting mediation were observed ($M=32.17$; $SD=43.20$; range 0–199). Teachers generally used 3.17 different strategies out of a possible seven types ($SD=2.17$; range 0–6). A majority of teachers used modeling (88%), directive (83%), and explain/elaborate (71%) at least once to support this domain (Table 3). Modeling was the most frequently used strategy ($M=16.63$; Table 4). Teachers often encouraged children to attempt writing independently, and when children encountered letters they did not know how to write, teachers modeled the formation of letters for children to copy or, in a few cases, trace. In some cases, teachers

Table 4 Mean frequencies of individual teachers' strategy use overall and by domain

	Overall			Handwriting			Spelling			Composing		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Modeling	28.00	23.60	1–93	16.63	21.83	0–90	7.77	12.98	0–64	3.60	2.77	0–12
Directive	52.87	42.96	0–154	6.80	14.81	0–70	37.47	29.72	0–107	8.60	6.96	0–23
Provide Choices	1.33	2.19	0–10	0.23	0.50	0–2	0.47	1.41	0–6	0.63	0.96	0–3
Closed-Ended Request	19.17	12.17	3–46	1.37	2.68	0–13	5.77	7.01	0–24	12.03	8.64	0–36
Open-Ended Request	4.37	4.06	0–19	0.30	0.70	0–3	0.70	2.40	0–13	3.37	3.08	0–12
Explain/Elaborate	12.67	11.63	0–46	5.00	9.65	0–38	5.27	5.41	0–20	2.40	3.01	0–13
Review	12.40	13.35	0–57	1.83	3.03	0–12	5.10	8.66	0–41	5.47	5.71	0–20
Trace ^a	1.27	2.39	0–8	–	–	–	–	–	–	–	–	–
Child dictation ^a	1.83	2.38	0–10	–	–	–	–	–	–	–	–	–
Task structuring ^a	1.97	2.62	0–13	–	–	–	–	–	–	–	–	–

^aFrequencies by domain are not reported as these three strategies were excluded from all domain-related analyses

Table 5 Mean percentages of individual teachers' strategy use overall and by domain

	Overall			Handwriting			Spelling			Composing		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Modeling	18.2	8.2	3–33	39.1	32.2	0–100	8.9	11.0	0–37	10.5	6.2	0–12
Directive	32.9	19.4	0–60	14.8	16.6	0–53	53.0	34.3	0–100	23.3	18.5	0–23
Provide Choices	1.0	1.6	0–6	0.9	2.3	0–8	0.4	1.4	0–7	1.8	2.8	0–3
Closed-Ended request	18.7	13.9	1–53	3.3	6.4	0–32	7.6	9.6	0–44	35.9	19.9	0–36
Open-Ended request	4.3	3.9	0–17	1.4	4.2	0–21	0.9	3.2	0–17	9.7	7.0	0–12
Explain/Elaborate	8.3	7.1	0–34	13.3	21.3	0–100	6.5	5.4	0–18	5.6	7.3	0–13
Review	9.3	7.3	0–25	7.3	14.2	0–47	6.0	7.7	0–29	13.3	9.7	0–20
Trace ^a	1.8	4.2	0–19	–	–	–	–	–	–	–	–	–
Child dictation ^a	3.1	5.6	0–25	–	–	–	–	–	–	–	–	–
Task structuring ^a	2.3	4.2	0–22	–	–	–	–	–	–	–	–	–

Individual teacher percentages were calculated by dividing the number of times a teacher used a given strategy by the teacher's total occurrences of writing mediation overall and total occurrences of writing mediation for each domain, and then multiplying by 100

^a Percentages by domain are not reported as these three strategies were excluded from all domain-related analyses

Table 6 Percentages of Strategy use overall and by domain for the entire sample

	Overall	Handwriting	Spelling	Composing
Modeling	20.6	51.7	12.4	10.0
Directive	38.9	21.1	59.9	23.8
Provide Choices	1.0	0.7	0.8	1.8
Close-Ended Request	14.1	4.3	9.2	33.3
Open-Ended Request	3.2	0.9	1.1	9.3
Explain/Elaborate	9.3	15.5	8.4	6.7
Review	9.1	5.7	8.2	15.1
Trace ^a	0.9	–	–	–
Child Dictation ^a	1.4	–	–	–
Task Structuring ^a	1.5	–	–	–

Percentages were calculated by dividing the number of times each strategy was used across all 30 teachers by the total occurrences of writing mediation overall and total occurrences of writing mediation for each domain, and then multiplying by 100

^aPercentages by domain are not reported as these three strategies were excluded from all domain-related analyses

provided hand-over-hand support to demonstrate letter formations. Modeling on average accounted for the majority (39%) of individual teachers' total occurrences of handwriting mediation (Table 5), and also comprised half of all occurrences of handwriting mediation across the entire sample (Table 6). To a lesser extent, directive (15%), explain/elaborate (13%), review (7%), and closed-ended request (3%) also comprised individual teachers' occurrences of handwriting mediation (Table 6). In these occurrences, teachers provided explicit directions for forming letters (e.g., "Make a long tail for the Y."); drew children's attention to the salient features of letters (e.g., "The letter M has two little mountains like this."); and asked children to identify the letter they just wrote (e.g., "What letter did you just make?").

Spelling

Across the sample, 25 of 30 teachers supported spelling. A total of 1,876 occurrences of spelling mediation were observed ($M=62.53$; $SD=44.20$; range 0–195). Teachers generally used 4.10 different strategies out of a possible seven types ($SD=2.33$; range 0–7). Directive was used at least once by all 25 teachers who supported spelling (Table 3). Explain/elaborate, modeling, closed-ended request, and review were also used at least once by over 80% of the teachers who supported this domain (Table 3). Directive was the most frequently used strategy ($M=37.47$; Table 4), accounting for 53% of individual teachers' total occurrences of spelling mediation (Table 5). This strategy also comprised about 60% of all occurrences of spelling mediation across the entire sample (Table 6). Teachers' use of directives often involved naming the sequence of letters or letter sounds for children to write down (e.g., "D-I-V-I-N-G."). To a lesser extent, modeling (9%), closed-ended request (8%), explain/elaborate (7%), and review (6%) also comprised individual

teachers' occurrences of spelling mediation (Table 5). In these occurrences, teachers verbally demonstrated the segmenting or blending of letter sounds (e.g., "Beeaaacchh."); asked closed-ended requests to help children identify letter sounds (e.g., "What's the next sound you hear in the word 'suun'?"); provided choices (e.g., "Does H or P make a /h/ sound?"); explained print concepts (e.g., "We write from left to right.") or extended children's letter-sound knowledge (e.g., "The letter B makes a /b/ sound, not /d/."); and asked children to review the word they just spelled (e.g., "What word did we just write?").

Composing

Across the sample, all 30 teachers supported composing. A total of 1,083 occurrences of composing mediation were observed ($M=36.10$; $SD=20.84$; range 6–84). Teachers generally used 5.43 different strategies out of a possible seven types ($SD=1.31$; range 2–7). Nearly all strategies were used at least once by 80% or more of the teachers, with the exception of provide choices and explain/elaborate (Table 3). Closed-ended request ($M=12.03$) and directive ($M=8.60$) were among the most frequently used strategies (Table 4), accounting for 36% and 23%, respectively, of individual teachers' total occurrences of composing mediation (Table 5). These two strategies also comprised the largest proportions of all occurrences of composing mediation across the whole sample (Table 6). To a lesser extent, review (13%), modeling (11%), open-ended request (10%), and explain/elaborate (6%) also comprised individual teachers' occurrences of composing mediation (Table 6). In these occurrences, teachers reviewed the written compositions by reading children's sentences aloud or prompting children to read the sentences; verbally modeled sentences to write down; prompted children to generate sentences by asking open-ended questions (e.g., "What's happening in the picture?"); and explained the use of writing conventions (e.g., "We put a period at the end so we know that our sentence is done.").

Differences in teachers' rate of writing mediation by domain

To determine whether there was a difference in the degree of individual teachers' writing mediation by domain, comparisons were conducted using a one-way repeated measures analysis of variance (ANOVA). Given that time was significantly correlated to the occurrences of teacher mediation for handwriting ($r=0.36$, $p=0.05$), spelling ($r=0.80$, $p<0.001$), and composing ($r=0.56$, $p=0.001$), teachers' rate of writing mediation served as the dependent variable in the analysis so that greater instances of writing mediation were not attributable to more time spent on completing the writing task. Teachers' mean rate of handwriting mediation was 2.51 ($SD=3.00$; range 0–14.63). The mean rate of spelling mediation was 4.70 ($SD=2.74$; range 0–9.06). Lastly, the mean rate of composing mediation was 3.23 ($SD=1.63$; range 0.47–8.33). Normality checks revealed that the residuals for rate of handwriting mediation was distributed with skewness of 2.53 ($SE=0.43$) and kurtosis of 8.52 ($SE=0.83$); the residuals for rate of spelling mediation were distributed with a skewness of -0.68 ($SE=0.43$) and kurtosis of -0.65 ($SE=0.83$); and the

residuals for rate of composing mediation were distributed with a skewness of 0.85 ($SE=0.43$) and a kurtosis of 1.84 ($SE=0.83$). No outliers were identified.

Results of the one-way repeated measures ANOVA showed that there was a significant main effect of domain on teachers' rate of writing mediation, $F(2, 58)=5.83$, $p=0.005$. Post hoc tests using the Bonferroni correction revealed that teachers' average rate of spelling mediation was significantly greater than their rate of handwriting mediation only ($p=0.006$). In other words, teachers tended to demonstrate more instances of mediation per minute for spelling than for handwriting with a mean difference of 2.19 instances per minute. The difference between teachers' rates for spelling mediation and composing mediation was not significant ($p=0.06$). In addition, the difference between teachers' rates for composing mediation and handwriting mediation was not significant ($p=0.96$).

Differences in teachers' supportive strategies by domain and age

In addition to our main analyses, we conducted a post-hoc exploratory analysis to examine how teachers' strategies also varied by children's age. Children's writing skills were not measured in this study; however, we determined that children's age would serve as an appropriate proxy given the trajectory of early writing development. As such, we analyzed the trends in teachers' domain focus and use of strategies within each age group. Although we report on the frequencies of specific strategies in the following section, we only examined these frequencies descriptively given small sample sizes within each age group. Specifically, the 3-year-old group comprised 10 children between the ages of 36 and 47 months ($M=42.20$, $SD=3.94$, range 36–46). The 4-year-old group comprised nine children between the ages of 48 and 59 months ($M=54.11$, $SD=3.48$, range 49–58). The 5-year-old group comprised 11 children between the ages of 60 and 71 months ($M=62.73$, $SD=1.68$, range 60–66). There were more males than females in the 5-year-old group only.

For the subsample of teachers paired with 3-year-olds ($n=10$), approximately 41% of occurrences of writing mediation was related to handwriting, 34% was related to spelling, and 25% was related to composing (see Online Resource 2). However, there was a considerable degree of individual variation among the teachers in this subsample (see Online Resource 3). Notably, there was a greater percentage of writing mediation that addressed composing within individual teachers (51%) compared to the whole sample (25%). Closer examination revealed that the three teachers who focused their support solely on composing were, in fact, working with children in this age group. Moreover, individual teachers paired with 3-year-olds most frequently used modeling ($M=25.70$) to support handwriting, directive ($M=40.20$) to support spelling, and close-ended request ($M=11.40$) to support composing (see Online Resource 4).

Further, results revealed an increasing trend in the percentage of writing mediation focused on spelling from the 3-year-old group to the 5-year-old group (see Online Resource 2). This trend was also observed at the individual teacher level (see Online Resource 3). Thus, whereas teachers in the 3-year-old subsample provided more handwriting mediation, teachers in the 4-year-old and 5-year-old subsamples more spelling mediation. For the subsample of teachers paired with 4-year-olds ($n=9$), about

54% of occurrences of writing mediation was related to spelling, 30% was related to composing, and 16% was related to handwriting (see Online Resource 2). This pattern was consistent at the individual teacher level such that spelling mediation, on average, comprised the largest proportion (48%) followed by composing (36%) and handwriting (16%), respectively (see Online Resource 3). In addition, individual teachers working with 4-year-olds most frequently used modeling ($M=10.11$) to support handwriting, directive ($M=28.33$) to support spelling, and close-ended request ($M=14.00$) to support composing (see Online Resource 4).

Similar to the 4-year-old subsample, teachers in the 5-year-old subsample primarily addressed spelling when supporting children's writing attempts, followed by composing and handwriting. Specifically, about 56% of occurrences of writing mediation was related to spelling, 28% was related to composing, and 17% was related to handwriting (see Online Resource 2). Likewise, this pattern was consistent at the individual teacher level such that spelling support, on average, comprised the largest proportion (50%) followed by composing (31%) and handwriting (19%), respectively (see Online Resource 3). Furthermore, individual teachers working with 5-year-olds most frequently used modeling ($M=13.73$) to support handwriting, directive ($M=42.45$) to support spelling, and both directive ($M=11.36$) and close-ended request ($M=11.00$) to support composing (see Online Resource 4).

Discussion

Children's early writing experiences can help to shape their foundational understandings about how print works and how meaning is expressed through writing (Rowe, 2018). Whereas previous research has largely focused on teachers' practices in the general classroom context (e.g., Gerde et al., 2015), we took a fine-grained approach to examine and describe the ways in which teachers supported children's early writing during a dyadic writing task. The teachers in this study were not prescribed specific strategies but rather encouraged to use facilitative techniques they considered appropriate for the child with whom they were completing the activity. Findings here complement and extend the literature on teachers' writing instructional practices in preschool classrooms in two important ways. First, we found that teachers frequently used directives, closed-ended requests, and modeling, respectively, to facilitate children's early writing. Second, the results showed that although teachers addressed the writing domains to varying degrees, they tended to focus most prominently on spelling and composing. Accordingly, the current study serves to add more dimension to our current understanding of adult mediation of writing. Findings here may offer valuable information regarding areas on which to focus future investigations and professional development efforts to help guide teachers' writing instructional practices in early childhood.

Teachers' strategies to support early writing

A key contribution of this work are the findings revealing the patterns of teachers' strategy use within the context of an open-ended dyadic writing task. Directives,

modeling, and close-ended requests not only comprised the largest proportions of individual teachers' strategy use, but also teachers' strategy use across the entire sample. Explanations/elaborations and reviews were also used but to a relatively lesser degree. Arguably, the findings concerning modeling and directives were not entirely surprising since these strategies are commonly used across a variety of classroom instructional contexts (Bingham et al., 2017; Copp et al., 2019; Gerde et al., 2015) and during joint writing tasks with parents (Aram & Besser-Biron, 2017; DeBaryshe et al., 1996). Thus, our findings add confirmation to the literature that adults' repertoire for teaching and facilitating early writing, on the whole, seems limited to a fixed set of specific strategies, even within a dyadic context. Yet, one important caveat is that despite the overall trends across the sample, individual teachers' strategy use varied widely such that teachers, on average, used eight unique strategies out of 10 at least once during the writing task. Therefore, when we consider the different types of strategies in teachers' repertoire (as opposed to just frequency and proportion), we found that individual teachers were in fact using a variety of techniques to support children's writing attempts, but some strategies (e.g., explanations/elaborations, reviews) were used less frequently than others.

Although we did not test causal mechanisms, we hypothesize potential factors that may have contributed to teachers' strategy use. In particular, teachers' intended goal for the writing task warrants further exploration as it may drive the use of specific strategies. For instance, one study of parent-child interactions during a letter writing task found that parents' directive instruction was associated with "a focus on the rule-governed aspects of writing" (Burns & Casbergue, 1992, p. 307). Similarly, the teachers in our study may have aimed to help children produce a "conventional-looking" story as evidenced by their use of directives to facilitate the conventional spelling of words. It is also possible that teachers required time for advanced planning to incorporate more explicit and targeted supports, and different wording of the instructions may have elicited greater use of other strategies (e.g., help children to brainstorm a story prior to writing). Thus, further investigation is needed to identify and unpack the factors that contribute to teachers' writing practices.

Furthermore, though we did not code for the level of support (i.e., low vs. high; see Bingham et al., 2017), the teachers in this study primarily used strategies that generally required less cognitive effort from children, such as directives and modeling, in keeping with prior work (Quinn et al., 2016). For example, teachers assumed much of the cognitive effort when they dictated the letters for children to write to spell out words. Likewise, teachers often demonstrated writing letters for children to copy but did not always describe their actions as evidenced by their patterns of use for modeling and explain/elaborate to support handwriting. Although we observed the use of strategies aimed at extending or "pushing" children's understanding about aspects of writing, these occurrences were relatively fewer compared to the more recurrent strategies. For example, we observed teachers drawing attention to the salient features of letters, explaining the use of writing conventions like punctuations and capitalization, and rereading what was written. Notably, some teachers used certain strategies to encourage children's invented spellings, such as closed-ended requests or providing choices, which afforded more cognitive challenge because children had to actively make speech-to-print connections (Cabell et al., 2014;

Gerde et al., 2012). We recognize that the considerable variation in preschoolers' early writing skills (Diamond et al., 2008; Puranik & Lonigan, 2011) may require teachers to provide a combined use of low- and high-level strategies for different aspects of writing (Quinn et al., 2016). However, in this study, teachers' greater use of strategies involving more direct assistance suggests that their writing practices were largely low-level in nature. Our findings warrant important consideration in view of research demonstrating that children benefit from explicit literacy instruction (Hamre, 2014; Justice et al., 2008; Zucker et al., 2013), and that higher-level writing practices are positively associated with children's writing skills (Zhang & Bingham, 2019).

These observed patterns in teachers' strategy use may reflect a lack of pedagogical knowledge on developmentally appropriate writing practices that encourage children's active participation and exploration of writing forms and processes (Gerde et al., 2012). For instance, previous work has identified considerable variability in Head Start teachers' knowledge and beliefs about evidence-based writing practices (Hindman & Wask, 2008). This may also be compounded by a lack of adequate curricular support to plan and implement differentiated writing instruction (Bazerman et al., 2017). Gerde et al. (2019a), in particular, reviewed five different curricula commonly used in Head Start classrooms (e.g., Creative Curriculum, High/Scope) and found that they lacked specificity and clarity in guidance for supporting handwriting, spelling, and composing. Although we did not collect information on classroom curricula, our findings suggest a need for professional development to support teachers' implementation of higher-level strategies that can enable them to make the writing processes more transparent and draw more explicit connections between the ideas expressed in oral language and writing (Cabell et al., 2013; Gerde et al., 2012; Hamre, 2014; Quinn et al., 2016).

Variations in teachers' strategy use according to domain and children's age

That teachers supported multiple domains within an open-ended dyadic writing task is another important finding of this work, and aligns with prior research showing that parents provide both code- and meaning-related talk during open-ended writing tasks like writing a letter (Burns & Casbergue, 1992; DeBaryshe et al., 1996) or speech bubbles for a wordless picture book (Aram & Besser-Biron, 2017). Furthermore, patterns in teachers' strategy use showed that they often utilized modeling to support handwriting, directives to support spelling, and close-ended requests to support composing regardless of children's age. These interactions, however, were not statistically tested due to a small convenience sample. Therefore, ascertaining whether teachers' strategy use varied by domain but not necessarily by children's age is beyond the scope of this study. Moreover, we acknowledge that the observed patterns in teachers' strategy use by children's age may be confounded by the fact that the same teacher was not observed working with multiple children of different age groups. All things considered, findings of our study suggest that an open-ended dyadic writing context may be conducive to instruction on multiple domains of writing, namely spelling and composing. This presents important practical implications

such that a dyadic writing task may be useful to promote spelling and composing within an authentic writing context.

Handwriting mediation

We found that the teachers working with 3-year-olds tended to provide more handwriting mediation than the teachers working with 4- and 5-year-olds. This is perhaps not surprising given that 3-year-olds have been found to score lower than their older peers on measures assessing their ability to write letters and names (Puranik & Lonigan, 2011). Thus, it is possible that teachers in the 3-year-old group provided more handwriting support to facilitate children's production of conventional letters (Casbergue & Strickland, 2016; Clay, 1975). Moreover, our finding that teachers provided the least support for handwriting is inconsistent with previous work showing that teachers' classroom writing instruction tends to emphasize this domain (Bingham et al., 2017; Gerde et al., 2019a, 2019b). In fact, one study found that even in kindergarten classrooms teachers spend most of their time on handwriting instruction (Puranik et al., 2014). We hypothesize that the low focus on handwriting may have been a function of the writing task. As Aram and Besser-Biron (2017) have found, adults are more likely to focus on children's formation of legible words in closed-ended tasks that involve "prescribed" items, such as children's names or single words. Since the writing task in our study required the production of sentences, teachers may have been driven to focus less on the legibility of individual letters given the task demands.

Spelling mediation

We noted an increasing trend in the proportion of teachers' spelling mediation between 3- and 5-year-olds. Yet, as we discussed, teachers primarily utilized directives to facilitate spelling regardless of children's age. Given our findings, an important caveat must be acknowledged. Although rate was a useful index by which to make comparisons, the time it took to apply certain strategies varied considerably, and this duration sometimes depended on the domain being addressed. Specifically, dictating letters to spell out words took comparatively less time than modeling letter formations or asking questions to help children generate ideas for what to write. Therefore, teachers' rate of spelling mediation may have been overinflated depending on word length and how often teachers dictated letters or letter sounds. Nevertheless, the importance of our findings is twofold. First, it is promising that the teachers in our study supported spelling within a designated task given the evidence for teachers' emphasis on handwriting instruction in the classroom (Gerde et al., 2015; Puranik et al., 2014). Second, our finding that teachers predominantly used directives to facilitate spelling suggests that there were few learning opportunities for children to invent spellings and make their own speech-to-print connections. Invented spelling is considered a critical stepping-stone towards conventional spelling and gradually progresses as children's letter knowledge and phonemic awareness grows. Children often begin to invent spellings in writing by representing the beginning and ending sounds in words before representing intermediate sounds (Cabell et al., 2013; Tolchinsky, 2006). Studies suggests that by encouraging

children to “create logical phonetic spellings”, teachers help to promote the active use of important early literacy skills, such as alphabet knowledge and understanding of the alphabetic principle (Cabell et al., 2013, p. 653; Ouellette & Sénéchal, 2017; Sénéchal et al., 2012). However, the teachers in our study did not make frequent use of strategies like close-ended requests and providing choices to afford children opportunities to invent spellings. This may be attributed to a lack of pedagogical knowledge and limited guidance from classroom curricula (Gerde et al., 2019a, 2019b) to support children’s invented spellings. Given that preschool learning standards recognize the importance of fostering invented spelling (International Reading Association and NAEYC, 1998), professional development may need to focus on providing teachers with specific guidance for engaging children to be more active participants in the writing process through opportunities to invent spellings when developmentally appropriate (Cabell et al., 2013; Gerde et al., 2012).

Composing mediation

It is encouraging that all teachers in the study addressed composing even though teachers’ mediation of this domain followed a similar sequence regardless of children’s age. That is, teachers usually solicited ideas for sentences to write by asking children closed-ended requests (e.g., “What are the kids doing?”), and then dictated the words for children to write (e.g., “Next word is ‘having’”). Conceivably, the writing task may have invoked composing mediation by requiring teachers to elicit from children sentences to write about the pictures provided. Like spelling, an important implication may be that an open-ended dyadic writing task is useful for promoting a greater focus on aspects of composing. Indeed, previous studies have found that parents use meaning-related talk when helping their children with an open-ended writing task, such as composing a letter (Burns & Casbergue, 1992; DeBaryshe et al., 1996). As the meaning-making aspect of writing, composing presents opportunities to promote oral language development within authentic writing tasks, and demonstrate for children how writing can be used in meaningful and communicative ways (Bingham et al., 2018; Gerde et al., 2012; Rowe, 2018). However, observational studies in early childhood classrooms have found that not only are there limited opportunities for children to compose (Bingham et al., 2017; Gerde et al., 2015), but also that composing-focused activities tend to be child-initiated and unplanned (Gerde et al., 2019a, 2019b). Together, our findings and extant research evidence suggests that teachers may require professional development to recognize and leverage composing as a gateway to writing for preschool-age children, regardless of the conventionality of children’s writing, by encouraging children to think about and discuss what they will write, make choices about which words to write, and offer opportunities to select topics for writing (Rowe, 2018).

Additional considerations

There are a few more considerations to acknowledge when interpreting the findings of this study. First, the lack of demographic information on the children may limit the generalizability of our findings. Furthermore, we examined dyadic

writing interactions within the context of only one type of writing task. The picture description writing task may not have reflected more common writing activities in teachers' classrooms. For instance, teachers have self-reported that they do not typically use journal writing, composing letters, or making books to promote early writing in preschool classrooms (Gerde et al., 2019a, 2019b; Hawken et al., 2005). Indeed, less than half of the teachers in our sample self-reported picture dictation or journal writing as activities they incorporated in their classrooms. Thus, teachers may perform differently in other writing formats or contexts. Finally, although reliability analysis of our observational measure resulted in kappa values that reflected substantial to near perfect agreement, we recognize that only a small portion of the data (10%) was double-coded. Nevertheless, our novel observational measure afforded a more fine-grained examination of dyadic writing interactions. Currently, available measures for studying adult mediation of writing focus more broadly on classroom environmental supports of writing (e.g., Writing Resources and Interactions in Teaching Environments [WRITE], Gerde et al., 2015) or use rating scales to analyze adults' strategies without capturing the frequency of behaviors (e.g., Aram & Levin, 2004). Further work should consider the development of a standardized tool that captures both the frequency and quality of teachers' instructional behaviors that would enable the comparison of findings across studies focused on early writing interactions.

Conclusion

In summary, the present study revealed important patterns in teachers' strategy use to facilitate multiple writing domains in a dyadic context. Our findings hold implications for potential factors associated with teachers' writing practices and may inform professional development efforts by highlighting areas for which teachers need more explicit guidance to provide higher-level support for handwriting, spelling, and composing. Future research should continue to explore and unpack the factors influencing teachers' decision-making and use of specific strategies when providing writing instruction in various instructional settings, including dyadic contexts. Understanding teachers' practices is a first step towards enhancing early writing instruction to help lay a critical foundation for written language acquisition and development.

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