Name Writing:
A First Step to Phonetic Writing?

Does the name have a special role in understanding the symbolic function of writing?

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ABSTRACT

This study tested how name writing affects young children's emergent writing. Beginning with a group of 96 Dutch children ages 3½–5, we selected more-advanced children who were producing strings of conventional letters but, apart from very few words, no correct or readable (invented) spellings ($N = 35$). All children recruited from middle-to-high socioeconomic status (SES) Dutch families were asked to write, in their native Dutch language, their name as well as a set of 16 words such as *baby* and *flower* that were not likely to have been practiced before. The children's control for writing their own proper name influenced spellings of unpracticed words. Fifty-two percent of the letters used to represent unpracticed words were letters from the child's proper name and, more importantly, the first letter of the name was the first one to be written phonetically. These effects of name writing were replicated in a second study with another sample of slightly older children (ages 4–6) from low SES Dutch families ($N = 79$). We speculate on factors that may explain why a shift to phonetic writing starts with the first letter of a child's name.

Children develop knowledge about writing from an early age. When asked to write a word or sentence young children do not hesitate to make some scribbles that look like writing. Ferreiro and Teberosky (1982) were among the first to show that children develop knowledge of the form and content of written language, presumably as a result of continuous exposure to writing and reading in their environment. The present studies examined how increasing familiarity with their proper name affects the way children write new (unpracticed) words. We tested (a) whether children use letters from their own name more often than other letters in random letter strings, and (b) whether letters from their own name are first used phonetically more than other letters when children make attempts to spell words that were not likely to have been practiced before.

Taking into account that name writing in the preschool stage is one of the best predictors of conventional, school-age literacy, the child's own name might be expected to play a special role in understanding the referential function of writing (Strickland & Shanahan, 2004). Many children become familiar first with their proper name. Children's writing of their own names is identifiable as writing sooner than for other words (Levin, Both-de Vries, Aram, & Bus, 2005). Furthermore, their own proper name is among the first words that children can write conventionally (Levin et al., 2005). On the other hand, writing the proper name does not automatically imply understanding of the alphabetic principle that the letters of printed language stand for sounds in spoken words (Byrne, 1998). The first letter or complete spelling of the child's own name is often memorized as a logogram. Dictating their name, children might not name the letters but describe the form of the letters. They may, for instance, say "first a stick with a circle." Young children memorize the letter forms before they can name the letters (Villaume & Wilson, 1989).

The way adults react to name writing (for instance, recognizing the name and reading it aloud) may stimulate a shift in children's procedural knowledge of writing, eventually resulting in phonetic writing (Levin & Aram, 2004). In joint attentional scenes like name writing, adults stimulate children to reflect on their rudimentary writing activities, which may improve children's understanding of basic concepts of writing (Tomasello, 1999). As adults read the name, children begin to reflect on what makes writing readable and may isolate features of their performance relevant to that success. As a result, children may become aware of letters as symbols and use these letters (e.g., 'my A') when writing other unpracticed words. We hypothesize, therefore, that children's understanding of writing as an alphabetic system starts with letters from their own name. Adults may also provide children with fairly substantial amounts of direct instruction about letters as symbols for sounds when talking about children's own or other people's letters and how they sound in words: "Look, that's your letter" or "That's the 'm' from *mama*" (Levin & Aram; Welsch, Sullivan, & Justice, 2003). Adults unintentionally instruct children on how letters of the

name sound in words, thus stimulating phonemic awareness by using letters from the child's name (Ehri & Wilce, 1987; Frost, 2001).

We hypothesize, therefore, that phonetic writing starts with the letters of a child's own name, whatever those letters are. Existing research, however, does not provide unanimous support for this hypothesis. Treiman and Broderick (1998), for example, found that English-speaking children do not necessarily know the sound for the first letter of their own name even when they show a relatively good knowledge of the conventional label of this letter. That is, a child named Victor is likely to be better than a child named Susan at saying the letter name *v*, but not at saying the corresponding sound /v/. If we assume that knowledge of the letter-sound relationship is essential, this hypothesis predicts that Victor wouldn't spell /v/ better than other letters when making attempts to write words. On the other hand, there is evidence that young speakers of Hebrew show elevated levels of letter-sound knowledge for the first letter of their own name (Levin & Aram, 2004). This finding would predict that a child's spelling might be stronger for that letter in particular. Studying kindergarten, first-, and second-grade students, Treiman, Kessler, and Bourassa (2001) found that early phonetic spellings are not limited to letters from the child's name. In spite of this contradictory result, we hypothesize that letters of the child's name influence the development of phonemic awareness. Assuming that sounding out is first practiced with letters of the name (e.g., adults may say: "that's /p/ of Peter") we expect that for a short period phonetic writing is restricted to the letters of a child's name. In Treiman et al.'s sample, the effect of name letters may not have been identified because a group of children who had just started to write phonetically was mixed with a somewhat more advanced group.

Several studies reported that young children select letters from their own name when they compose texts or write dictated words (Aram & Levin, 2001; Bloodgood, 1999; Treiman, Kessler, & Bourassa, 2001). Bloodgood, for instance, concluded that 41% of the letters written by 30 kindergarten children in 349 texts were letters from their own name. Children may prefer these letters to other letters from the alphabet because they are aware that these letters symbolize meaning (Sulzby, Barnhart, & Hieshima, 1989). Children may have, for example, found that adults were able to recognize their name writing. Another possibility is that the sounds of name letters are recognized in spoken words prior to other letter sounds because children often practice rhyming with names and sounding out name letters. Adults may sound out letters of the child's name more often than any other letter (e.g., "That's your letter, /p/ of Peter"). However, as letters from the name are known to be utilized randomly when writing unpracticed words, it is unclear whether these letters are used phonetically. Letters of the child's name may indeed match to sounds for dictated words, but their selection may have been purely accidental. Treiman

et al. characterized those letters as having been used *ambiguously,* leaving open the possibility that letters from the child's name were selected by chance even where sounds did match.

STUDY 1

Purpose

This study tested whether symbolic writing (i.e., the use of conventional symbols) and emergent phonetic writing (i.e., the use of letters to represent some sounds within words) by Dutch children writing in Dutch originate through children's use of the letters within their own individual names. Dutch utilizes a relatively transparent orthography; Dutch spelling can be predicted quite well from pronunciation (Geudens & Sandra, 2003).

Studies of the effects of name writing on young children's writing have typically examined whether children utilize the first letter of their name when writing words that contain that letter. However, the examination of emergent phonetic writing in this way overlooks the possibly ambiguous use of children's own-name letters (Treiman et al., 2001). To avoid this situation, we applied an alternative strategy. We calculated the proportion of letters that was (a) derived from each child's own name, (b) used ambiguously, and (c) used *randomly* (e.g., the child's own-name letter is not part of the correct spelling). When name letters are used as often ambiguously as they are randomly, it seems plausible that these letters have actually been selected randomly and not because children have recognized the sound in the spoken words. By contrast, if ambiguous use of letters from the name exceeds random use, we can make a reasonable case for the assumption that the letters of the name were primarily selected because children recognized the sound in the focal word.

Therefore, we coded for the random and ambiguous use of letters by each child. When Oliver adds *o* to a letter string that represents the dictated word *zon* (Dutch for sun), for example, but not to the word *tomaat* (tomato), the percentage of ambiguous use of *o* is 50%. If the same child produces *o* in the letter strings meant to represent 14 other words without *o* (e.g., *baby*, *man*), his score on random *o* is 100%.

Specifically, then, we examined

- whether children used proportionally more name letters than letters not from the child's own name,

- whether the proportion of ambiguously written name letters exceeded the proportion of randomly written name letters, and

- whether the proportion of ambiguously written letters exceeded the proportion of randomly written letters that were not from the child's own name.

If symbolic writing begins with letters from the child's name, then we may expect that symbolic writing includes a substantial number of name letters. If phonetic writing begins with letters from the child's name, we can then expect that these letters are (contrary to other non-name letters) more frequently ambiguous than random. This hypothesis was tested in a group that had started to produce phonetic writing (i.e., one phonetic letter in a few dictated words). This effect may be restricted to the first letter of the child's name because care-givers and teachers are inclined to name and sound out this letter in daily life more often than any other letter (Levin & Aram, 2004). As children thus grasp that letters relate to sounds, the number of phonetically used letters increases at a great pace and this name effect may soon disappear (Treiman et al., 2001).

Methods

Participants

We selected 35 children in the 46–61 months age range (M = 55.0, SD = 3.4) from a previous study (Both-de Vries, 2006) that included 96 Dutch children. The 35 selected children used conventional symbols in more than half of the 16 dictated words, but the products rarely were conventional or readable invented spellings. All children were from middle-to-high socioeconomic status (SES) families with Dutch as their first language. Based on concern for the resulting validity and reliability of assessment, we did not select children who were sec-ond-language learners of Dutch or, according to their teachers, developmentally delayed in language, hearing, or intellectual abilities.

Assessment procedures

For assessment purposes, we selected a set of Dutch words we considered would be well known to preschoolers to make it easy for them to remember the words during the writing process. Besides their own proper name, children wrote 16 unpracticed words: *dropjes* (liquorices), *sneeuw* (snow), *konijn* (rabbit), *man* (man), *bal* (ball), *boek* (book), *bloem* (flower), *drie bloemen* (three flowers), *tomaat* (tomato), *zon* (sun), *baby* (baby), *moeder* (mother), *wiel* (wheel), *doos* (box), *boom* (tree), and *drie bomen* (three trees).

Assessments were spread over two sessions of 20 minutes each. During the sessions the examiner met each child individually in a separate room. Each child wrote eight words per session; in all they produced 16 products of writing. During dictation the examiner avoided the use of indefinite articles ("Write *baby*.") In the first session, children also wrote their own proper name.

Coding

For the child's written name and each of the 16 dictated words we coded the

number of words in which children had used conventional symbols and the number of words in which one or more letters were correct. Intraclass correlations between two coders on *one or more conventional symbols*, *one correct symbol*, and *two or more correct symbols* were .99, .94 and .93, respectively.

Next we coded per child and per conventional symbol (a) if the letter was the first letter from the child's name, another letter that appeared in the name, or any other letter (below referred to as a non-name letter); and (b) if the letters were used randomly or ambiguously. To calculate in percentages how often children had used the first or another letter of their name ambiguously or randomly, we divided the number of words in which children had used the first or another letter of their name ambiguously or randomly by the number of words that did or did not include that letter. The same calculation was done for non-name letters that appeared in children's writing. For example, Sandra used the first letter of her name in her written representation of two out of four words that indeed included an s/z-sound (i.e., *dropjes, sneeuw, doos,* and *zon*). This resulted in a 50% score for ambiguous use of the first letter of the name. Sandra also used *s* in 10 of the 12 other words that do not include *s*, resulting in an 83% score on random use of the letter. The same coding was done for each of the other letters in Sandra's name and for the letters *m*, *o,* and *f* that are not letters from her name but that she often used in her written representations of dictated words. We tested the difference between ambiguous and random use of letters for (a) the first letter of the name, (b) the other letters of the name, and (c) non-name letters appearing in the spelling of words. Testing the difference between ambiguous and random use, we took the average scores for name letters other than the first letter and the average scores for non-name letters.

For a selection of 5 children, two independent coders (both authors) agreed substantially on the number of words that included the first letter of the name, other letters of the name, and non-name letters. Intraclass correlations for first letter, other name letters and non-name letters were $r = .83$, $r = .87$, and $r = .89$, respectively.

Results

Level of writing

We separated children not yet writing phonetically from those who had just started to produce some phonetic spelling, and tested ambiguous versus random use of letters for both levels separately. *Level 1*, not writing phonetically ($N = 17$), mainly produced random letter strings rarely selecting correct letters; they wrote at most one correct letter in 2 out of 16 dictated words. *Level 2* ($N = 18$), by contrast, chose one or more correct letters in three or more words out of

eight words. On average Level 2 children wrote 3.4 (*SD* = 1.9) words with one or more correct letters whereas Level 1 children wrote .4 (*SD* = .7) words with one correct letter. With very few exceptions, even Level 2 children did not produce readable invented spellings. Level 2 children were more advanced in name writing than those at Level 1: 65% of Level 2 children wrote almost all letters of their name correctly; 76% of Level 1 children wrote only one or two letters correctly. Children at both levels were on average 4 years 6 months old.

Proportion of name letters in dictated words

When writing dictated words, children used a small number of different letters. We tallied name letters and non-name letters (letters appearing more than once in one word were tallied one time). About half of the letters were derived from children's names: 58% (*SD* = 18) at Level 1, and 46% (*SD* = 22) at Level 2. When they used non-name letters, there was not much variety: 20% (*SD* = 11) of non-name letters at Level 1, and 33% (*SD* = 11) at Level 2. Simple forms like *o* and *i* were the most frequently used non-name letters: Level 2 children wrote *o* or *i* in about half of the 16 words (44% and 47%, respectively); Level 1 children used *o* in 26% and *i* in 12% of all words.

We tested whether all name letters occurred to the same extent in dictated words or whether the first letter predominated. We tallied the number of words that included the first letter of children's names. For each other letter of children's names we tallied the number of words that included that letter and averaged the number of words written with one of the other letters from children's names. Next we tested whether the percentage of words written with the first letter of children's names exceeded the percentage of words that included other letters from the name. According to a significant matched-pair Wilcoxon test, Level 1 children produced more words that included the first letter of their name (*M* = 39%, *SD* = 30) than words with other letters from the name (*M* = 22%, *SD* = 22), *Z* = -1.97, *p* < .05, *N* = 17. Level 2 children, however, did not prefer their own name's first letter to other letters from their name. About as many words included first letters (*M* = 39%, *SD* = 37) as other letters from the name (*M* = 52%, *SD* = 30). According to a matched-pair Wilcoxon test, the difference was not statistically significant.

Ambiguous and random letters from the name

Did children select the letters from their name and other letters by chance or because they recognized the letter sounds in dictated words? Level 2 children wrote the first letter of their own name ambiguously (*M* = 55%, *SD* = 40) more often than randomly (*M* = 38%, *SD* = 37). According to a matched-pair Wilcoxon test, the difference between ambiguous and random use of first letters of the name was statistically significant, *Z* = -2.16, *p* < .03, *N* = 17 (two-tailed). In other words, it is not merely chance that children use the first letter

of their name phonetically. Other letters from the name, on the contrary, were written randomly as often as ambiguously, 34% (*SD* = 21) versus 36% (*SD* = 19), suggesting that they recognized the sound of the first letter of the name in the dictated words but not the sounds of other letters from their name.

On the other hand, the difference between random and ambiguous first letters of the name was not statistically significant for the Level 1 group. These children used the first letter of their name randomly as often as ambiguously which indicates that, at this writing level, correctly selected letters from the child's name were chance hits and not chosen by the child because he or she had recognized the sound in the spoken word. Children also wrote the other letters from their proper name randomly as often as ambiguously: 18% (*SD* = 16) versus 18% (*SD* = 18). (See Table 1.)

Ambiguous and random non-name letters

Is the finding that the first letter of the name is more often used ambiguously than randomly unique to the first letter of the name or can it be replicated with non-name letters? The present results support the hypothesis that phonetic writing starts with the first letter of the child's own name. We did not find a statistically significant difference between ambiguous and random non-name letters. Level 2 children wrote on average one or more non-name letters in 88%

Table 1. Percentage of Ambiguous (A) Versus Random (R) Name Letters and Non-Name Letters Used in 16 Words by Writing Level

Group	N^a	A^b	R	N	A	R	A	R
		First Letter of Name			Other Letters of Name		Non-Name Letters	
Writing Level 1	15	34.5 (33.2)	38.7 (33.8)	17	17.6 (17.9)	17.9 (16.1)	5.4 (6.1)	7.7 (5.6)
Writing Level 2	17	55.4* (39.9)	37.5 (37.3)	18	35.8 (18.3)	34.8 (19.3)	20.3 (15.8)	15.5 (8.9)

Level 1 = rarely using phonetic writing
Level 2 = writing one phonetic letter in 3 or more words

[a]Because of the limited set of letters appearing in the 16 dictated words, not all children could be included.
[b]Letters match sounds in words but children may have chosen the letters by chance.
* p < .05

(*SD* = 18) of the dictated words, but these letters were used randomly (*M* = 16%, *SD* = 9) as often as ambiguously (*M* = 20%, *SD* = 17). The Level 1 children wrote fewer non-name letters (*M* = 53%, *SD* = 30). They used these letters randomly; the difference between ambiguous (*M* = 5%, *SD* = 6) and random letters (*M* = 8%, *SD* = 6) was not statistically significant.

Discussion

Phonetic writing starts with letters from one's own name. When children make letter strings they often select letters from their proper name (*M* = 52%, *SD* = 21) probably because they are most familiar with these forms or because they are aware that these letters/signs are symbols for a referent. Children producing random letter strings use the first letter of his/her own name (in 37% of all dictated words) more often than other letters from the name (name letters appear on average in 22% of all dictated words) or non-name letters (non-name letters appear on average in 6% of all dictated words). The results of this study also lend plausibility to the idea that phonetic writing begins with the first letter of the name because children are more familiar with the sound of this letter than with the sound of any other letter. They succeed in recognizing the sound of the first letter of their own name in new, not yet practiced words before they can recognize the sounds of other letters. When children have just started to write phonetically (Level 2 children) the percentage of ambiguous use of first letters from the name exceeds the percentage of random use. Hence the ambiguous first letters are not chance hits but indicate that children often select the first letter of his/her own name because it represents a sound in the word. These children also select one of the other name letters to represent dictated words (in 50% of the dictated words) but for those letters there is no difference between ambiguous and random use.

Apparently, children know the other name letters as written symbols but they do not know how these letters sound in words and thus use them purely randomly. The same is true for non-name letters. Children often write *o* and *i* and some other letters but it is not plausible that they select these letters because they recognize the sound in spoken words. An objection to this conclusion may be that phonetic use of some frequently appearing letters was obscured because scores for letters other than the first letter of the name and for non-name letters were averaged. Thus we cannot rule out that one or two letters other than the first letter of the name were used phonetically as well. To test this hypothesis we selected per child the letter that most frequently appeared in the 16 words; this could be a non-name letter or a name letter other than the first letter of the name. Post hoc testing revealed that the selected letter was used ambiguously as often as randomly. According to a matched-pair Wilcoxon test, the difference between phonetic and random use was not statistically significant.

In other words, these findings suggest that phonetic writing starts with the first letter from the child's name. Children are able to recognize the sound of this letter in dictated words before all other letters and to correctly represent this letter in the spellings that they construct to represent referents. It is not plausible that children select the first letters of their name because they are easy letters. Inspecting the set of first letters in this study, for example, it is striking that this set includes most letters of the alphabet (18 out of 26) and not just "easy forms" like *o* and *i* or acrophonic letters like *p* or *t* where letter names facilitate acquisition of letter sounds (Foulin, 2005).

It also makes sense that the first letter of the child's name was used phonetically before other name letters when we consider that the first letter may be practiced more than any other letter in relationship to a name or sound. Note that adults may often say: "That's your letter, the *t* from Tom." In other words, we hypothesize that children do not start to use letters phonetically until they are instructed in how these letters sound in words.

Is instruction over time limited to the first letter of the child's name? It is imaginable that instruction first expands to other letters from the child's name. When supporting their children as they try to write unpracticed words, mothers may use other letters from the name as cues: "It's *r* like in Peterrr" (Aram & Levin, 2001). Alternatively, children with an emerging understanding of the alphabetic-phonetic principle—they are able to recognize and write the first letter of the name in spoken words—may ask adults how to represent other phonemes when trying to write unpracticed words, thereby expanding their letter knowledge beyond letters from their own name. While writing new, not yet practiced words, they may wonder how to represent other unknown sounds. Children may thus elicit instruction in non-name letters and sounds. In the present study, children who were just starting phonetic writing wrote other letters from their name twice as often as non-name letters, but phonetic writing of these other name letters was random. We wondered if somewhat more-advanced children first expand phonetic writing to other letters from their name. Do they use the other letters from their name phonetically and more often than non-name letters?

STUDY 2

Purpose

In Study 2 we tested (a) whether older and more-advanced children than those in Study 1 generalize phonetic writing first to other letters from their name or directly to other non-name letter, and (b) whether in a group of children from low SES families we can replicate our finding that phonetic writing starts with the first letter of the name.

Methods

Procedure and task

Similar to the first study, children wrote their own name and nine other words on a sheet of blank paper. Children were tested individually in a quiet corner or separate room in kindergarten. Each child was asked to write his/her name and then several dictated words were presented one at a time. The instructions were straightforward: "Write your name" and "Write X" (e.g., *vis* (fish)). The assessment was completed in one session.

Participants

Similar to Study 1, we selected children who used conventional symbols (letters or numbers) to represent their name and other words. Thus, from the complete sample of 88 children, we selected 79 Dutch 4- to 6-year-olds (*M* = 5; 8, range 4; 3 – 6; 5). The children were selected from three kindergarten classrooms in the same school in a small town in The Netherlands. Overall the children came from low-socioeconomic status families. Like most Dutch kindergarten classrooms, letters or other knowledge basic to reading and writing were not part of the school curriculum.

Assessment procedures

Similar to Study 1, we dictated words that were well known to preschoolers to make it easy for them to remember the words during the writing process. In addition to their own names, children wrote nine other words*: kaas* (cheese)*, zak* (sac)*, wip* (seesaw)*, pop* (doll)*, vis* (fish)*, zon* (sun)*, papa* (daddy)*, mama* (mommy)*,* and *flippo* (pog). *Papa* and *mama* were excluded from most analyses because we noticed that many children knew those words as a logogram similar to their proper name. On average 23% (*N* = 18) of the group wrote *papa* and/or *mama* conventionally, whereas only 13% (*N* = 10) wrote one or more of the other dictated words conventionally.

Coding

For the name and each of the nine dictated words we coded the number of words in which children had used conventional symbols and the number of words in which one or more letters were correct. Intraclass correlations between two coders on *one or more conventional symbols*, *one correct symbol*, and *two or more correct symbols* were .99, .93, and .92, respectively.

Per child and per conventional letter we examined (a) whether the letter was a first or another letter from the name or a non-name letter, and (b) whether the letters were used randomly or ambiguously. This resulted in two scores per letter. (See Study 1 for an illustration of coding.) For a sample of children (*N* = 10) the agreement for use of name and other letters in dictated

words between two coders (both authors) ranged from r = .72 (for ambiguous use of other name letters) to r = .96 (for ambiguous use of first letter from the name) (mean r = .87, SD = .09).

Results

Level of writing

In this study we distinguished three levels of writing. Children at *Level 1* (N = 26) made random letter strings, rarely selecting correct letters (at most one letter in 1 or 2 of the dictated words). *Level 2* children (N = 37) wrote one letter correctly in 3 or more words. Children at *Level 3* (N = 16) (not represented in Study 1) chose two or more correct letters to represent words resulting in a substantial number of fairly readable invented spellings (M = 4.4 words, SD = 2.3). They wrote for instance *ks* instead of *kaas* or *vs* instead of *vis*. Quality of name writing differed among the three writing levels. According to a Kruskal Wallis test, this difference was statistically significant, χ^2 (2, N = 79) = 9.65, p < .008. According to a Fisher Z test, Level 2 children were more advanced than Level 1 children, χ^2 (1, N = 63) = 26.18, p < .001. Level 2 children wrote almost all letters of their name correctly (87%), whereas almost half of the Level 1 children wrote only one or two letters of their name correctly (54%). All children at Level 3 wrote their name correctly. They outperformed children at Level 2, χ^2 (1, N = 53) = 13.90, p < .001.

Proportion of name letters in dictated words

Level 1 and Level 2 children used a small number of different letters to represent the dictated words. They mainly used letters from their name: 65% (SD = 23) at Level 1 and 53% (SD = 22) at Level 2 were name letters. In the group scoring at the highest writing level, name letters were less dominant; 32% (SD = 16) of all letters were name letters. Dominance of name letters in dictated words decreased with children's writing level. According to a one-way ANOVA, writing level caused a significant effect on letters of the name, F (2, 76) = 11.6, p < .001. According to post hoc testing (Bonferroni), Level 1 and Level 2 did not differ, but Level 3 differed from Level 1 and from Level 2 (p < .01). In so far as children of the two lower levels used non-name letters, there was not much variety: Level 1 children used 15% (SD = 7) of non-name letters; Level 2 children used 24% (SD = 10).

Did all letters from the name appear in dictated words or especially the first letter? We counted the number of words written with the first letter of children's names as well as the number of words that included other letters of children's names. (See Study 1 for procedures.) We tested separately for each level whether the percentage of words written with the first letter of children's

names exceeded the percentage of words that included one of the other letters from the name. Children at the lowest writing level (Level 1) used the first letters of their name (*M* = 48%, *SD* = 40) more frequently than other letters from the name (*M* = 39%, *SD* = 25), but this difference was not statistically significant. Children at Level 2 and Level 3 used the other letters of their name as frequently as the first letter of their name: First letters appeared in 41% (*SD* = 34) and 13% of all words (*SD* = 18) and other name letters in 48% (*SD* = 22) and 26% of all words (*SD* = 15), respectively.

Ambiguous and random letters from the name

Because about half of the letters of the alphabet did not appear in the dictated words, approximately half of the children at all writing levels could not be included in testing the effects of first letters of the name on writing unpracticed words. Level 1 children (those who mainly produced random letter strings; *N* = 12) wrote the first letter of their name randomly (*M* = 25%, *SD* = 28) as often as ambiguously (*M* = 14%, *SD* = 30). The difference between the number of ambiguous and random first letters was, according to a matched-pair Wilcoxon test, not statistically significant. So correct first letters were chance hits at this level. Outcomes were similar for other letters from the name. Children scoring at writing Level 2, on the contrary, wrote the first letter of their name ambiguously more often (*M* = 59%, *SD* = 44) than randomly (*M* = 47%, *SD* = 36). According to a matched-pair Wilcoxon test, the difference between ambiguous and random first letters of the name was statistically significant, *Z* = -2.08; *p* < .02, *N* = 22 (one-tailed). On the other hand, they wrote other letters from the name randomly as often as ambiguously: *M* = 44% (*SD* = 32) versus *M* = 38% (*SD* = 21), respectively. Results were the same when instead of the pooled set of other name letters, we chose a letter from the name other than the first letter that most frequently appeared in the dictated words. This frequently written letter was used ambiguously as often as randomly. Did the children at Level 3 (more than one correct letter per word) write letters from the name ambiguously or randomly? According to matched-pair Wilcoxon tests, the differences between ambiguous writing (*M* = 61%, *SD* = 45) versus random writing (*M* = 8%, *SD* = 10) of the first letter from the name and the difference between ambiguous writing (*M* = 61%, *SD* = 40) versus random writing (*M* = 9%, *SD* = 13) of other name letters were statistically significant, *Z's* < -2.36; *p's* < .01, *N* > 7 (two-tailed). In other words, at Level 3 ambiguous name letters were not merely chance. (See Table 2.)

Ambiguous and random letters, not from the name

Level 1 children wrote one or more non-name letters in about half of the dictated words (*M* = 5, *SD* = 3). The difference between ambiguously written (*M* = 6%, *SD* = 5) and randomly written non-name letters (*M* = 4%, *SD*

= 5) was not statistically significant. Level 2 children wrote non-name letters in most of the dictated words (*M* = 7, *SD* = 2). Children at this level wrote some non-name letters ambiguously but they did so randomly (*M* = 15%, *SD* = 9) as often as ambiguously (*M* = 16%, *SD* = 9). Results were the same when instead of the pooled set of non-name letters, we chose the non-name letter that appeared most frequently in the dictated words. This frequently appearing letter was used ambiguously as often as randomly. If phonetic writing first expands to other letters from the name, we may expect that Level 3 writers use non-name letters ambiguously as often as randomly. This hypothesis was not supported. Level 3 children wrote non-name letters (appearing in nearly all of the words, *M* = 92%, *SD* = 9) ambiguously (*M* = 55%, *SD* = 21) more often than randomly (*M* = 5%, *SD* = 7), suggesting that they hear these letters in the spoken words. According to a matched-pair Wilcoxon test, this difference was statistically significant, *Z* = -3.52, *p* < .001, *N* = 16 (two-tailed).

Did children use letters from words such as *mama* and *papa* ambiguously more frequently than randomly?

Many children knew *papa* and *mama* as logograms: On average 23% of the group wrote *papa* and/or *mama* conventionally (10% *papa* as well as *mama*), whereas only 13% wrote one or more of the other words conventionally. As children have learned to write these words they may use the first letter of these words more often ambiguously than randomly. At Level 1 and Level 2, four children wrote *papa* conventionally. One child's name started with *p* and was therefore excluded from further analyses. The remaining three children indeed tended to write the letter *p* ambiguously (*M* = 33%, *SD* = 34) more often than randomly (*M* = 8%, *SD* = 14) similar to the first letter of their proper name. According to a matched-pair Wilcoxon test, the difference between writing the first letter of *papa* ambiguously and randomly tended to be statistically significant, *Z* = -1.34, *p* < .09, *N* = 3 (one-sided). The *p* from *papa* appeared more frequently ambiguously in their writing (*M* = 33%, *SD* = 34) than any other non-name letter (*M* = 12%, *SD* = 7), but this difference was not statistically significant. Unfortunately we were unable to test the same for the letter *m* in *mama* because this letter did not appear in the set of dictated words. However the finding that at Level 1 the letter *m* was the most frequently written non-name letter suggests that right from the very start of symbolic writing, *m* from *mama* is a well-known letter form.

Table 2. Percentage of Ambiguous (A) Versus Random (R) Name Letters and Non-Name Letters Used in 7 Words by Writing Level

Group	First Letter of Name			Other Letters of Name			Non-Name Letters of Name		Most Frequent Other Letter of Name			Most Frequent Non-Name Letter		
	N^a	A^b	R	N	A	R	A	R	N^a	A	R	N^a	A	R
Writing Level 1	12	13.8 (30.0)	24.5 (27.9)	26	25.8 (31.1)	36.0* (26.0)	5.5 (5.0)	6.2 (4.9)	16	43.7 (46.7)	66.3* (30.8)	13	46.2 (34.2)	45.6 (32.2)
Writing Level 2	22	58.8* (43.7)	47.0 (35.5)	37	44.0 (31.5)	37.5 (21.3)	16.3 (9.3)	14.7 (9.3)	27	59.6 (46.4)	75.3 (21.2)	32	64.4 (32.5)	68.0 (28.5)
Writing Level 3	7	60.7* (45.3)	8.1 (10.2)	16	60.8* (40.1)	9.0 (13.1)	54.8* (21.3)	5.3 (6.7)	11	94.0* (13.4)	10.6 (18.9)	16	94.8* (18.6)	19.3 (28.3)

Level 1 = rarely using phonetic writing
Level 2 = writing one phonetic letter in 3 or more words
Level 3 = writing a number of readable invented spellings

[a]Because of the limited set of letters appearing in the 7 dictated words, not all children could be included.
[b]Letters match sounds in words but children may have chosen the letters by chance.
* p < .05

Discussion

Study 2 focused on older children from low-SES families, replicating our finding that invented spelling begins with the first letter of the child's own name. The first letter of the name was the letter most often used correctly when children were just starting to write some correct letters to represent referents; the percentage of ambiguously written first letters exceeded that of randomly written first letters indicating that the correctly used first letters were not chance hits. Other letters from their own name often appeared in the children's writing (in about half of the words) but apparently not because of the match with sounds in the word. To the degree that children are familiar with the spelling of other well-known words such as *mama* and *papa,* the findings offer some support for the hypothesis that first letters of these words may also be among the first to be written phonetically.

The results of this second study are unique because we were able to reconstruct how invented spelling develops after children have begun to represent the first letter of the name correctly in dictated words. In contrast to the first study, the data of Study 2 enabled us to test whether slightly more-advanced children (those who represent one or two letters correctly in most dictated words) use other letters from the name correctly before the use of non-name letters. Surprisingly, we found that in this more-advanced group phonetic writing was not limited to the letters of the name. This slightly more-advanced group used all letters from their proper name ambiguously more often than randomly, as well as non-name letters. In other words, it is only at the very start that invented spelling is restricted to the first letter from the name. The alphabetic-phonetic principle is transferred to a variety of letters after children have discovered, by means of the first letter of the name, that letters relate to sounds in spoken words. We can imagine that after children have become proficient in writing their own name, they will ask for support in writing other names and referents. In response to that, adults expand instruction to other letters; they demonstrate how letters other than those from the child's name are formed and sounded in words thereby stimulating children to use other letters in their invented spellings.

Conclusions and Practical Implications

The first letter of the child's name is the one and only letter that is written phonetically at the very start of phonetic writing. A plausible explanation for this finding is that phonemic awareness results from the instruction elicited by the first letter. As a result, phonemic awareness starts with the first letter of the name and young children are successful at recognizing the sound of this letter in spoken words before doing so for other letters/sounds. The proper name thus supplies young children with a model through which they can analyze

and represent spoken language (Olson, 1996). This explanation fits with the finding that letter knowledge supports phonemic awareness; letters may draw children's attention to the sounds in spoken words (Bus & Van IJzendoorn, 1999). An alternative hypothesis would be that from the very beginning phonemic awareness is not restricted to particular phonemes but that children are first able to show understanding of the alphabetic principle with the letter they best know as a letter: the first letter of their name (cf. Vernon & Ferreiro, 1999). Whatever the best interpretation of these results, this study demonstrates the effects of familiarity with the name and letters from the name on children's emerging writing skills.

The present results are in line with Tomasello's (1999) developmental theory: After a stage of imitating behavior (here: producing a logogram of their proper name) children develop a meta-cognitive understanding of their behavior probably as a result of adults' responses to successful imitations of the name (e.g., "It says Peter."). By sounding out letters ("/p/ of Peter") adults may initiate a process in which children begin to reflect on imitative writing thereby paving the way to a higher level of understanding of how the written form represents a referent. It seems plausible that instruction is elicited by children's more or less successful attempts to imitate writing of their proper name and other names. In other words, name writing thus functions as the pacemaker for the alphabetic strategy (Frith, 1985).

The present findings make us aware that memorizing "chunks" of letters that represent their name holds great promise for the development of alphabetic knowledge in children. Considering that the name is an incentive for learning basic literacy skills, teachers should provide a support system of prompts, hints, and feedback for writing the proper name. This is particularly important when genetic differences are a main constraint in terms of memorizing the orthography of words (Bus & Out, 2008). Normally, intense practice of activities like name writing is not provided in Dutch educational settings for young children. It would perhaps be beneficial if teachers in preschool and kindergarten took advantage of the proper name as a starting point for the development of basic knowledge about letter names and sounds and how letters can be used to approximate conventional spelling.

Limitations and Future Directions

A limitation of these studies is that some of the letters of the alphabet (in Study 1, 4 letters and in Study 2, 14) did not appear in the dictated words. Consequently, two children participating in Study 1 (5%) and nearly half of the participants in Study 2 could not be included in testing effects of first letters of the name on writing dictated words. On the other hand, it should be noted that despite this restriction, the data enabled us to test the main hypoth-

esis (phonetic writing starts with the first letter of the proper name) for a variety of letters. Even in Study 2, the set of first letters included about half of the letters of the alphabet (12 letters) and, more important, not only easy letters but so-called non-acrophonic letters (N = 4) such as *m* or *r* (Foulin, 2005). In future studies it might be worthwhile to select, per child, a set of words with the first letter of the name appearing in half of the words.

REFERENCES

Aram, D., & Levin, I. (2001). Mother-child joint writing in low SES: Sociocultural factors, maternal mediation, and emergent literacy. *Cognitive Development, 16,* 831–852.

Bloodgood, J. W. (1999). What's in a name? Children's name writing and literacy acquisition. *Reading Research Quarterly, 34*, 342–367.

Both-de Vries, A. C. (2006). *It's all in the name. Early writing: From imitating print to emergent writing*. Unpublished dissertation. Leiden University, The Netherlands.

Bus, A. G., & Out, D. (2008). Unraveling genetic and environmental components of early literacy: A twin study. *Reading and Writing* (in press). DOI 10.1007/s 11145-008-9115-0.

Bus, A. G., & Van IJzendoorn, M. H. (1999). Phonological awareness and early reading: A meta-analysis of experimental training studies. *Journal of Educational Psychology*, *91*, 403–414.

Byrne, B. (1998). *The foundation of literacy. The child's acquisition of the alphabetic principle.* East Sussex, UK: Psychology Press Ltd.

Ehri, L. C., & Wilce, L. S. (1987). Does learning to spell help beginners learn to read words? *Reading Research Quarterly, 22*, 47–65.

Ferreiro, E., & Teberosky, A. (1982). *Literacy before schooling*. Portsmouth: NH: Heinemann.

Foulin, J. N. (2005). Why is letter-name knowledge such a good predictor of learning to read? *Reading and Writing, 18*, 129–155.

Frith, U. (1985). Beneath the surface of dyslexia. In: K. E. Patterson, J. C. Marshall, & M. Coltheart (Eds.), *Surface dyslexia. Neuropsychological and cognitive studies of phonological reading* (pp. 301–330). London: Erlbaum.

Frost, J. (2001). Phonetic awareness, spontaneous writing, and reading and spelling development from a preventive perspective. *Reading and Writing, 14*, 487–513.

Geudens, A., & Sandra, D. (2003). Beyond implicit phonological knowledge: no support for an onset-rime structure in children's explicit phonological awareness. *Journal of Memory and Language, 49,* 157–182.

Levin, I., & Aram, D. (2004). Children's Names Contribute to Early Literacy: A linguistic and social perspective. In D. Ravid, & H. Bat-Zeev Shyldkrot (Eds.), *Perspectives on language and language development*. Dordrecht, The Netherlands: Kluwer.

Levin, I., Both–de Vries, A. C., Aram, D., & Bus, A. G. (2005). Writing starts with own name writing: From scribbling to conventional spelling in Israeli and Dutch children. *Applied Psycholinguistics, 26*, 463–477.

Olson, D. R. (1996). Towards a psychology of literacy: On the relations between speech and writing. *Cognition, 60,* 83–104.

Strickland, D. S., & Shanahan, T. (2004). Laying the groundwork for literacy—Preliminary findings from the National Early Literacy Panel. *Educational Leadership, 6*, 74–77.

Sulzby, E., Barnhart, J., & Hieshima, J. (1989). Forms of writing and rereading from writing: A preliminary report. In J. Mason (Ed.), *Reading-writing collection* (pp. 31–63). Neeham Heights, MA: Allyn & Bacon.

Tomasello, M. (1999). *The cultural origins of human cognition*. Cambridge: Harvard.

Treiman, R., & Broderick, V. (1998). What's in a name? Children's knowledge about the letters in their own names. *Journal of Experimental Child Psychology, 70,* 97–116.

Treiman, R., Kessler, B., & Bourassa, D. (2001). Children's own names influence their spelling. *Applied Psycholinguistics, 22,* 555–570.

Vernon, S. A., & Ferreiro, E. (1999). Writing development: A neglected variable in the considerations of phonological awareness. *Harvard Educational Review, 69*, 395–415.

Villaume, S. K., & Wilson, L. C. (1989). Preschool children's explorations of letters of their own names. *Applied Psycholinguistics, 10,* 283–300.

Welsch, J. G., Sullivan, A., & Justice, L. M. (2003). That's my letter!: What preschoolers' name writing representations tell us about emergent literacy knowledge. *Journal of Literacy Research, 2*, 757–776.

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