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It's all in the name : early writing: from imitating print to phonetic writing

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6 ARE NAME LETTERS APART FROM THE FIRST ONE AMONG THE FIRST LETTERS TO BE USED PHONETICALLY? ^{1,2}

Abstract

The aim of this study was to replicate the effects of name writing reported in Chapter 5 with another sample of older children from low socioeconomic status families (N = 79). The first letter of the name was also the first one to be written phonetically. More advanced writers understood the principle of alphabetic-phonetic writing and phonetic writing was not restricted to name letters.

¹ If quoting the research in this chapter, please refer to: Both-de Vries, A. C. & Bus, A. G. (2006). *Name Writing: A First Step to Phonetic Writing? Does the name have a special role in understanding the symbolic function of writing.* Manuscript submitted for publication.

² Our thanks to Maria de Jong for generously providing the data of her study.

Introduction

In the present study we tested: 1. Whether older and more advanced children than those in Study 5 (Chapter 6) generalize phonemic writing first to other letters from their name or directly to other non-name letters; and 2. Whether in a group of children from low socioeconomic status (SES) families we can replicate that phonemic writing starts with the first letter of the name.

Method

Procedure and task

The data in Chapter 6 were collected for another purpose (de Jong & Bus, 2002). Similar to the first study, children wrote their 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" (i.e. 'vis' [fish]). The assessment was completed in one session.

Participants

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

Stimuli

In addition to their own name children wrote 9 dictated 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 words conventionally.

Coding

For the name and each of 9 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. Agreement between two coders on one or more conventional symbols, one correct symbol, and two or more correct symbols was .99, .93, and .92, respectively.

Per child and per conventional letter we examined: 1. whether the letter was a (first) letter from the name or a letter not from the name; and 2. whether the letters were used randomly or ambiguously. This resulted in two scores per letter:

random and ambiguous. See Chapter 5 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 one or two of the dictated words) similar to level 1 children in Chapter 5; children at *level 2* ($N = 37$) wrote one letter correctly in three or more words similar to level 2 children in Chapter 5; children at *level 3* ($N = 16$) (not represented in Chapter 5) chose 2 or more correct letters to represent words resulting in a substantial number somewhat readable invented spellings ($M = 4.4$ words, $SD = 2.3$). They wrote for instance 'ks' instead of 'kaas' [cheese] or 'vs' instead of 'vis' [fish]. Quality of name writing differed among the three writing levels; according to a Kruskal Wallis test this difference was statistically significant; $\chi^2(2, N = 79) = 9.65, p < .008$. According to a Fisher Z test, children scoring at level 2 were more advanced than level 1 children, $\chi^2(1, N = 63) = 26.18, p < .001$. Children at level 2 wrote almost all letters of their name correctly (correct: 87%), whereas almost half of the level 1 children wrote only one or two letters of their name correctly (correct 54%). All children at level 3 wrote their name correctly. They outperformed children at level 2, $\chi^2(1, N = 53) = 13.90, p < .001$.

Proportion of name letters in dictated words

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

Did all letters from the name appear in dictated words or mainly the first letter? We counted the number of words written with the first letter of children's names and calculated the number of words including other letters of children's names (see for procedure, Chapter 5). We tested, for each level separately, 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 often as the first letter of their name. At level 2 and 3 first letters of the name appeared in 41% ($SD = 34$) and 13% ($SD = 18$) of the dictated words and other name letters in 48% ($SD = 22$) and 26% ($SD = 15$) respectively.

Ambiguous and random letters from the name

At all writing levels about half of the children could not be included in testing effects of first letters of the name on writing dictated words because about half of the letters of the alphabet did not appear in those words. Children from level 1 (the ones who mainly produced random letter strings; $N = 12$) wrote the first letter of their name as often randomly ($M = 25\%$, $SD = 28$) as ambiguously ($M = 14\%$, $SD = 30$); see Table 2. The difference between the number of ambiguous and random first letters was 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, by contrast, wrote the first letter of their name more often ambiguously ($M = 59\%$, $SD = 44$) 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)). By contrast, they wrote other letters from the name as often randomly as ambiguously; scores were $M = 44\%$ ($SD = 32$) 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 apart from the first letter that most frequently appeared in the dictated words. This frequently written letter was used as often ambiguously 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 no chance hits.

Ambiguous and random letters, not from the name

Children at level 1 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. Children at level 2 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 as often randomly ($M = 15\%$, $SD = 9$) as ambiguously ($M = 16\%$, $SD = 9$); see Table 2. Results were the same when, instead of the pooled set of non name letters, we chose a letter not from the name that most frequently appeared in the dictated words. This frequently appearing letter was used as often ambiguously as randomly. Did more advanced writers (writing level 3) use non-name letters as often ambiguously and randomly, which would indicate that phonetic writing first expands to other letters from the name?

Table 1. Proportion (SD) of ambiguous versus random name letters and non-name letters used in 7 words by writing level (level 1 = score 7.5-8.5 on the writing scale; level 2 = score 8.6-9.5 on the writing scale; level 3 = score 9.6 or higher on the writing scale)

Group	N ^a	% First letter of Name		N	% Other letters of Name		N	% Non-name letters		N ^a	% Most frequent other letter of Name		N ^a	% Most frequent non-name letter	
		Ambi- guous ^b	Random		Ambi- guous	Random		Ambi- guous	Random		Ambi- guous	Random		Ambi- guous	Random
Writing level 1	12	13.8 (30.0)	24.5 (27.9)	26	25.8 (31.1)	36.0* (26.0)	26	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)	37	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)	16	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)

^aBecause of the limited set of letters appearing in the 7 dictated words 38 of 79 children could not be included in analyses of use of first letter of the name, 25 of the 79 children not in analyses of the most frequent used letter of the name and 18 of the 79 children not in the analyses of the most frequent used not-name letter.

^bLetters correspond to the sound in words but this correspondence is possibly by chance.

* $p < .05$.

This hypothesis was not supported. Level 3 children wrote non-name letters (appearing in nearly all of the words, $M = 92\%$, $SD = 9$) more often ambiguously ($M = 55\%$, $SD = 21$) than randomly ($M = 5\%$, $SD = 7$). According to 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 (mommy) and papa (daddy) more frequently ambiguously than randomly?

Many children knew *papa* and *mama* as logograms: on average 23% of the children wrote 'papa' and/or 'mama' conventionally (10% 'papa' as well as 'mama'), whereas only 13% of the children wrote one or more 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 when they try to spell new words. At level 1 and 2 four children wrote *papa* conventionally. One child's name started with 'p' and was therefore excluded from further analyses. The remaining 3 children indeed tended to write the letter 'p' more often ambiguously ($M = 33\%$, $SD = 34$) 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 rest of the 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 symbol.

Discussion

In another sample including older children from low SES families, we could replicate that invented spelling begins with the first letter of familiar names. The first letter of the name was the letter most often used correctly when children just started to write some correct letters to represent referents; the percentage of ambiguously written first letters exceeds that of randomly written first letters indicating that the correctly used first letters are no chance hits. Other letters from their own name often appear in their writing (in about half of the words) but apparently not because of the match with sounds in the word. Children are also eager to learn to write other important words such as 'mama' and 'papa' as appears from the relatively high number of children in this study that correctly spelled these words. 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 letter 'm' was the most frequently written letter and, in so far children were able to write 'papa', they used 'p' phonetically in unpracticed words.

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 unpracticed words. Different from Chapter 5, the data of the present study enabled us to test whether somewhat more advanced children (the ones who represent one or two letters correctly in most words) use other letters from the name correctly preceding non-name letters. Surprisingly we found that in this more advanced group phonetic writing was not limited to the letters of the name. Children at this level used all letters from their proper name more often ambiguously than randomly but also letters not from the name. In other words, only at the very start is invented spelling restricted to the first letter from the name. The alphabetic 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 are proficient in writing their own name, they ask for support in writing other names and referents. In response to that, grown-ups expand instruction to other letters; they demonstrate how letters other than those from the child's name are formed and sound in words thus stimulating that children also use other letters in their invented spellings.

A limitation of the present study is that about half of the letters of the alphabet did not appear in the dictated words. Nearly half of all available children could therefore not be included in testing effects of first letters of the name on writing unpracticed words. On the other hand, it should be noted that, despite of this restriction, the data enabled us to test the main hypothesis (phonetic writing starts with the first letter of the proper name) for a variety of letters. The set of first letters included about half of the letters in the alphabet (12 letters) and, more important, not only "easy" letters but also so-called non-acrophonic letters ($N = 4$) such as L or R (Foulin, 2005). In future studies it might be worthwhile to select per child a set of words with the first letter appearing in half of the words.

