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

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3 IS WRITING OF YOUNG CHILDREN RECOGNIZABLE FOR EXPERTS?[1,2]

Abstract

Adults with no knowledge of the children's age and how the product was created, sorted and named 1536 products of writings and drawings, from 96 children. There were three age groups (3½-4, 4-4½, 4½-5). The findings show that children as young as 4 years were able to produce graphic forms that included characteristics of writing and that could be sorted accurately as writing. The data also indicated that readability decreased as writing became more symbolic. In so far as children produced phonetic writing it was at most one letter and therefore not supportive of naming scores.

[1] If quoting the research in this chapter, please refer to: Both-de Vries, A. C., & Bus, A. G. (2006). Early writing: Similarities between writing and drawing. Manuscript submitted for publication.

[2] Our thanks to Willemieke de Jong for her assistance in data collection.

Introduction

In the previous chapter we tested whether, in the early stages, communication through writing is typically driven by object-related iconic devices just as drawing. As long as children know how to draw print but have not yet perceived writing as a communicative device, the request to write a particular word creates a dilemma: representing the meaning of the word or representing "print." This dilemma may be solved by drawing: resorting to object-related iconic devices neglecting features of writing of which they are aware. We expect the former effect especially when the task implies writing as a mnemonic device. We therefore created a task that emphasized the need to write in a readable manner.

The same hypotheses were tested by secondary analyses of the data. Experts sorted the products of writing as writing or drawing and named the products. We expected that experts would be able to recognize writing to some extent right from the earliest age. We also expected that sorting of dictated words would be easier than sorting of labels because making labels children may replace writing by drawing. Assuming a decrease of drawing instead of writing we expected that, with increasing age, writing would be recognizable whatever the task characteristics. We expected that experts would not be very successful in naming writings of children in the age range studied here but to the extent that they were successful, success was more likely in the younger rather than the older group. Younger children may often replace writing by drawing and that may help to identify the meaning of the product. Phonetic representations may be included in older children's writing but their minor form and incidental occurrence might not be sufficient to support naming.

Method

Experts

Sixteen experts evaluated the products of Study 1 (see Chapter 2) in 3 different tasks. Without exception, these experts were professionals familiar with young children's writings and drawings, being kindergarten teachers, staff developers, or researchers. On average they had 14 years of experience in these professions.

Tasks

Each expert did 3 tasks, each time evaluating a different set of products or a different selection of children from Study 1. Thus, 16 experts sorted and named all 1536 products.

Task 1: Sorting products representing one referent.

Each expert sorted the 192 drawings and written versions of all 96 children for one stimulus into 4 piles: "I think this is a drawing" or "I think this is writing"; and in case they were less certain: "I guess this is drawing" or "I guess this is writing." They were awarded 3 points when the sorting was correct without any doubt, 2 points when the sorting was correct but included some doubt, 1 point when the sorting was incorrect with some doubt, and 0 when it was incorrect without any doubt. All 16 products of each child were thus sorted but each product was sorted

by a different expert. We calculated a mean score per set. Alpha reliabilities for writing were .89 (set 1) and .89 (set 2) and for drawing .68 (set 1) and .78 (set 2).

Task 2: Sorting all products of one child.
Each expert sorted the 32 written versions and drawings of one child presented in random order adding the same qualifications as in task 1. Each expert sorted the products of 6 children, two from each age group. Thus, all children were sorted once. Scores on writing and drawing were very similar because the experts were aware of the equal number of written versions and drawings per child. We used therefore the mean score for writing and drawing. Alpha reliabilities for set 1 and 2 were .62 and .88.

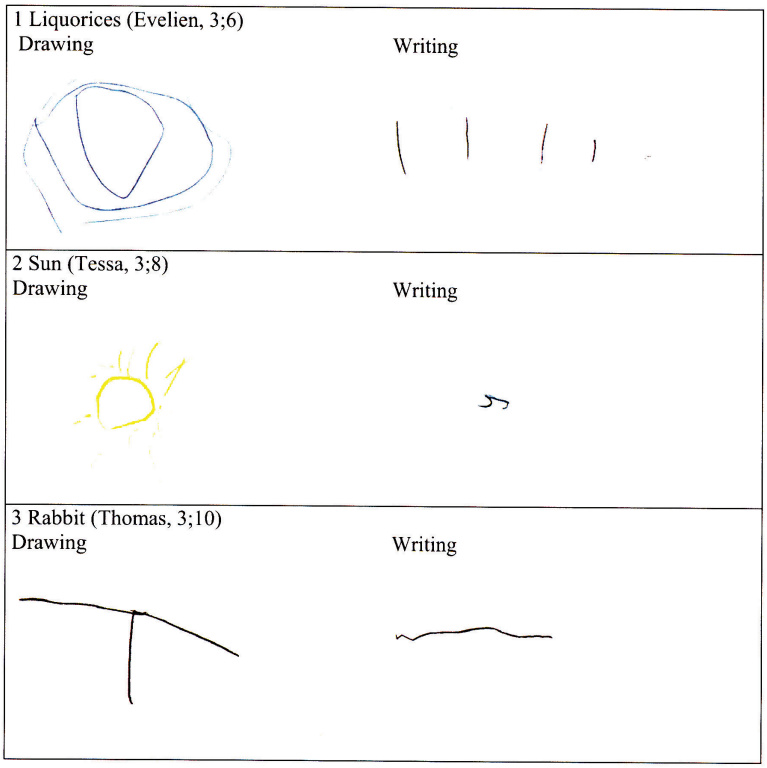
Task 3: Naming written versions and drawings.
For another selection of 6 children (two from each age group) each expert matched written versions or drawings with the sixteen stimuli. This task was carried out for each of six children and for writing and drawing separately. Naming drawing preceded naming the written version. For each child and each mode, the number of correct matches was tallied per set (the maximum score was 8). Alpha reliabilities for writing were .74 (set 1) and .77 (set 2). Alpha reliabilities for drawing were .73 (set 1) and .77 (set 2).

Design
All experts started with Task 1, which was the only task during the first session. In the second session 8 experts completed the other tasks, i.e. Task 2, Task 3 (drawing), and Task 3 (writing), in this order. The other 8 experts continued with Task 3 (drawing) and Task 3 (writing) in a third session. Three students presented the task to the experts, in the expert's home, in school or in the university laboratory. There was no time pressure.

Results and Discussion
The results support the hypothesis that, from an early age, children succeed in giving the impression of writing. Making two piles of all 192 products representing the same referent (Task 1) experts were least successful in the youngest group because these children mostly drew and rarely attempted to write. In the older groups experts had far fewer problems in distinguishing writing from drawing, indicating that children in this age range, compared to the youngest group, were familiar with features of writing. Experts put most words written by the oldest and middle children on the pile 'writings without any doubt.' With increasing age, children became better at creating writing-like products. According to a significant Kruskal Wallis test, χ^2 (2, N = 96) = 26.13, p < .001, older children's writing were better sorted. Mean scores per word for the oldest, middle and youngest group were 2.72 (SD = .39), 2.37 (SD = .80), and 1.85 (SD = .72), respectively. Younger children reverted more to drawing when a dilemma – representing the written form or a referent's meaning – was created for them by task features. Binomial tests were used to compare the number of children whose products were sorted at

above or at chance level. The chance score was set at 1.5: the mean score when all four alternatives (0 = incorrect without any doubt, 1 = incorrect with some doubt, 2 = correct but with some doubt, and 3 = correct without any doubt) were chosen as often. The middle group scored at above chance level on dictated words (M = 2.49, SD = .76) and on labels but only when the writing session started with a dictation (M = 2.78, SD = .30). By contrast, they scored on chance level with labels as they first wrote labels during the test (M = 1.93, SD = .93). These results are in line with our hypothesis that emphasizing writing as a mnemonic device tempted the children in this age group to make drawings and to give up a written device. A similar effect did not occur in the youngest group probably because they always produced numerous drawings instead of writings or because features of writing were not yet very pronounced. The oldest group always scored at above chance level indicating that, even when writing was emphasized as a mnemonic device, their writing represented features clearly different from drawing.

Figure 1. Children's writing and drawing products of the same dictated word illustrating differences that even the youngest children represented in their products of writing and drawing.



Even the youngest group was acquainted to some extent with features of the written form. Sorting *one* child's products into two piles - one for writing and one for drawing - (Task 2) sorting was always at above chance level for the middle (M = 2.40, SD =.50), oldest (M = 2.66, SD = .32), and even for the youngest group (M = 2.01, SD = .52). Experts were probably more successful at sorting writing and drawing because minor signs characteristic of writing such as small form attracted more attention, as products of the same child could be compared with each other. Figure 1 presents three youngest children's writings and drawings of the same referent. All examples illustrate that writings were smaller than drawings; note however that this feature became less striking in the figure as drawings were scaled down more than the writings. Examples 1 and 3 also illustrate that writing features like linearity (example 1 and 3) and segmentation (example 1) were more conspicuous when products could be compared with each other than viewed apart.

This set of data also supported the conclusion that success in naming products of writing mainly resulted from iconic symbols in the beginning stages of symbolic writing. Overall, the number of correctly named products (Task 3) was low for the oldest, middle and youngest group; out of 16 words the three groups scored 2.75 (SD = 3.62), 3.31 (SD = 2.70), and 2.50 (SD = 1.83), respectively. Binomial tests were used to compare the number of children whose products were readable at above or at chance level. The chance of matching one of 16 referents and one of 16 products correctly was 1/16 per product; for 16 products the chance of correct matches was therefore 1. In the middle group (M = 2.13, SD = 1.93) naming was at above chance level ($p < .05$) for labels but only when children first wrote labels in the test sessions. By contrast, dictated words and labels written after dictated words were named at chance level. When the task and/or task order emphasized the need to write in a readable manner, the middle group often included iconic features in writing, which may explain why experts succeeded in naming products of this age group at above chance level. In the youngest and oldest group experts never succeeded in naming products of writing at above chance level, but probably for different reasons. The youngest group included drawing in writing but these products missed details that allowed recognition. The oldest group, by contrast, produced written-like forms but apparently without any transparent relationship between written form and meaning.

Are experts better able to name words in the beginning stages of invented spelling? To answer this question we tested whether experts were more successful in naming words when the words included one or two phonetic letters. Experts were indeed somewhat more successful in naming words with one or two correct letters but the proportion of correctly named words was not significantly higher. In all, there were 906 words coded as writings from which 104 (12%) included phonetic features (scoring on 'one or two phonetic letters' or on 'invented spelling'). From the words that were written phonetically 16% were named correctly, whereas from the words without phonetic features 9% were correctly recognized. According to a Fisher Z, this difference was not statistically significant. Even though experts knew which words were written, the one or two

correct letters did not support word recognition. It is our impression that most children selected letters from a small set of familiar letters at the start of symbolic writing. As a result, similar letters returned in many words suggesting a random selection of letters. Inspecting the set of words for relevant cues, experts may have noticed the similarity in letters and therefore ignored letters as cues. In all, the present findings suggest that a shift from writing-like forms to symbolic writing does not make children's writings readable. A shift to symbolic writing makes children's notations less readable.

Names written on a cactus, Temple Valley, Agrigento, Sicily, July 2004.