

Chapter 2

Learning About Writing Begins Informally

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Abstract The first few years of formal schooling focus on teaching children how to read and write. In this chapter, we explore what children may learn about written language prior to receiving formal instruction. Specifically, we review evidence suggesting that children acquire information about the surface and deeper features of language through informal interactions with their parents and other adults. For example, children learn about the surface features of language (the general features of print, as well as features of words and letters) through exposure to print in their environment and through activities such as learning about the alphabet. Children may also begin to learn about the deeper features of print (how writing symbolizes language) through interactions with their parents that suggest that written language is in some ways similar to spoken language. The research findings suggest that children learn a good deal about written language prior to instruction in school but that their knowledge may be restricted to elements of the language that are particularly salient to them, such as their own names. Recognizing the role that these experiences play in shaping young children's knowledge of written language offers new avenues of research, as well as suggestions for how to improve formal education in reading and writing.

Introduction

Learning to read and write is a difficult task for young children. For example, a child needs to understand that the printed word *dog* symbolizes a spoken word (which is itself a symbol), and that it does so in virtue of the sounds that correspond to each of the letters in the word. How do children acquire this ability? Most children do not fully understand the spelling–sound relations that underlie reading

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and writing without formal instruction. In many countries, this instruction proceeds by teaching children the sounds of the individual letters and then teaching them to pronounce and spell written words. Much research has focused on this explicit instruction, asking which methods best help children learn about printed language (e.g., Snow & Juel, 2005).

Becoming fully literate may require formal instruction, but children learn about some aspects of print informally. This learning may occur at home, through interactions with parents, or in preschools and daycare centers. Indeed, research has shown that children in literate societies often receive information about the printed language in such ways. These findings suggest that, even before they can read or write, children may know a good deal about how the printed language works. This general point has been urged by several theorists (e.g., Ferreiro & Teberosky, 1982; Sulzby, 1985). In this chapter, we identify two classes of information about written language that children often receive before formal literacy instruction begins and discuss how this information may help children learn about reading and writing. The first type of information concerns the surface features of writing: what letters and words look like. A second concerns the deeper features of the written language, specifically the fact that print symbolizes spoken language. Informal learning about the surface and deep features of writing begins at an early age, and it can help prepare children for the formal instruction on the specifics of the written language that takes place in school.

Surface Features of Language

Children begin to learn about written language by learning what print looks like. Children in literate societies see print on cereal boxes, traffic signs, notes around their homes, and in many other contexts. Through such exposure, children gain familiarity with the general visual characteristics of print and begin to learn how it differs from other symbol systems. From here, children can begin to identify particular units of print that they encounter frequently and may come to recognize features of the symbols that comprise those units. Knowledge of the surface features of written language can be described at three levels: general surface features of print, words, and letters.

Children's Knowledge of the General Surface Features of Print

Understanding written language requires differentiating it from other symbol systems. Graphically, writing differs from other symbol systems along a variety of dimensions. Writing differs from drawing in two central ways. First, the symbols of writing are organized into straight lines, whereas drawing allows for nonlinear arrangements. Second, the symbols used in the written language rarely look like

what they represent. In the few cases that they do, as in the case of the two circles in *look* that look rather like eyes, the resemblance is usually incidental. In drawing, on the other hand, the symbols are intended to look like the objects they symbolize. These two differences between writing and drawing correspond to two general features of the printed language: linearity and lack of iconicity, respectively. Written language differs from another symbol system, numerals, in that the symbols of printed language are not often repeated. For example, 8888 is a number, and one that a child might see, as on a mailbox. In contrast, *pppp* cannot be a word.

Additional characteristics of the written language are specific to particular systems. One such characteristic is directionality: whether a language is read from left to right or from right to left. For example, Hebrew goes from right to left while English and Spanish go from left to right. Languages also differ in the orientation of writing: Although all are linear, some – such as German – arrange their symbols in horizontal lines, while others – such as Japanese – traditionally use vertical lines. Written languages also differ in their systems of symbol shapes, as can be seen from the differences between the letters of the Latin alphabet and Chinese characters.

Studies suggest that children learn about the surface characteristics of print through exposure to print in their environments. Before formal reading instruction begins (around age six in the U.S. and Israel), children show a preference for print that is compatible with the general characteristics of the written language to which they have been exposed. In one study, English-speaking 3-year-olds were more likely to select sets of symbols from their own language as instances of writing than Chinese characters or Mayan designs (Lavine, 1977). In another study, differentiation based on symbol shape did not occur until closer to four and a half years of age (Levy, Gong, Hessels, Evans, & Jared, 2006). Either way, a preference for the symbols of the child's own printed language develops prior to formal instruction about word reading and spelling. Additionally, when asked to choose items that are appropriate for reading, children as young as 3 years of age tend to select linear arrangements of symbols (Ganopole, 1987). Children tend to reject strings of identical symbols (e.g., *pppp*) as appropriate for writing (Lavine, 1977).

Children display an understanding of the general surface characteristics of print in their own attempts at writing. Four-year-olds from the U.S. who cannot write actual words tend to arrange their scribbles horizontally (Brenneman, Massey, Machado, & Gelman, 1996), and some studies report a correspondence between children's scribbling movements when they attempt to write and the directionality of their written language (Pontecorvo, 1985; Sulzby, 1996). In a study with Hebrew- and Dutch-speaking children, Levin and Bus (2003) showed that, starting after around their third birthday, children's writings and drawings began to look subtly different from one another. The writings tended to be organized linearly and divided into discrete segments, whereas drawings were larger, nonlinear, and more continuous. Children showed some ability to tell the difference between their writings and drawings when asked about them later, as did their parents. Similar findings have been reported for Japanese-speaking children (Yamagata, 2007). However, the differences between children's writings and drawings are subtle, and neither the writing nor the drawing looks much like what it is intended to represent. This is

reflected in the fact that parents typically refer to both as scribbling. Although it takes children some time to make more prominent distinctions between the two systems, they seem to possess some general understanding of the distinction between writing and other symbol systems prior to explicit instruction about writing.

Children's Knowledge of the Surface Features of Words

Exposure to print helps children become familiar with the general features of written language, but this does not always result in knowledge about the specific units of print, such as words and letters. Parents often report that 3- and 4-year-olds can recognize a number of words in their environments, such as the names on labels of products. Parents may take this as reading, but children's ability to recognize these words depends heavily on context, such as the color of the label, the presence of pictures or graphics, or the presence of the item denoted. Thus, children are unlikely to notice when letters of these words have been altered, and they have difficulty identifying the words outside their usual contexts (Masonheimer, Drum, & Ehri, 1984).

Evidence that children's knowledge of writing can be restricted to general features of print has led Tolchinsky (2003) to argue that children's understanding of written language moves from general to more specific features through a process of differentiation. Children first learn about the features of written language that are common to all languages – linearity, lack of iconicity, and so on – and only later learn about features that are specific to the particular written language to which they are exposed, such as directionality. This hypothesis has been challenged by recent findings that suggest that, at least for certain types of words, children show a preference for certain language-specific features quite early, earlier than they show preferences for certain general features (Treiman, Cohen, Mulqueeny, Kessler, & Schechtman, 2007). These findings were obtained with words that are highly salient to young children: their own names. Three- and four-year-olds exposed to English were especially sensitive to the shapes of the letters at the beginnings of their names, suggesting that they pay special attention to the beginnings of words (the leftmost letter in the case of English) and that they know about the properties of the letters in at least some specific words. For example, a child named Brendan would often reject a misspelling of his name even when the first letter was of a similar shape to the one actually in his name (e.g., *PRENDAN*), showing good knowledge of the initial letter shape. Children were less knowledgeable about the exact shapes of their names' medial and final letters, so that Brendan sometimes accepted *BREMDAN* as a correct rendition of his name, while rejecting *BREXDAN*.

The results from Treiman, Cohen et al. (2007) further suggest that we must consider children's early opportunities for learning about print when assessing their knowledge about writing. Children have many opportunities to learn about and recognize their own names at home and at preschool, and this knowledge plays an

important role in learning to read and write (Levin & Aram, 2004; Treiman, Kessler, & Pollo, 2006). Indeed, a survey of the parents of U.S. preschool children found that 70% of the words that 3- and 4-year-old children knew were personal names (Treiman, Cohen, et al., 2007). Only 15% of the words that parents reported their children as knowing came from a list of preprimer and primer words (e.g., *me, help, dog, stop*) that commonly appear in children's books (Harris & Jacobson, 1972) and that are typically used in formal reading instruction with beginners. Attention to the words that young children actually attend to and learn about can help us understand what children know about the written language.

The results of Treiman, Cohen, et al. (2007) indicate that, as U.S. children progress through the preschool period, they develop a preference for depictions of their names in which all the letters are capitalized. This result is at first puzzling, as the children's developing preferences are not aligned with the conventional patterns of English (names written in English have the first letter capitalized, as in *Steve*). However, upon further reflection, this result provides further support for the claim that children's exposure to print should be taken into consideration when considering their understanding of printed language. This is because, in the above-mentioned survey by Treiman, Cohen et al. parents reported that they tended to use uppercase letters when writing for their children.

The finding that U.S. children prefer words in all-uppercase letters helps to specify the types of early experiences that are the most formative for knowledge about print. Children are exposed to print when adults are not writing for them, such as when parents and children read storybooks. Children's books in English typically have capital letters only at the beginning of proper names and sentences. Given that children's preferences for forms like *STEVE* are compatible with their parents' writing, and not with the print in books, we can infer that children are more attentive to writing during the former experiences than the latter. This conclusion fits with research showing that young children spend most of their time looking at the pictures, not the print, during storybook reading (Evans & Saint-Aubin, 2005). It also fits with the research suggesting that writing with parents, with the parents guiding the children, is important in literacy development (Aram, 2006; Aram & Biron, 2004).

Children's attentiveness to their own first names is revealed in their attempts at writing. For example, studies with Hebrew- and Dutch-speaking children have shown that preschoolers are better at writing their own names than other words (Levin, Both-De Vries, Aram, & Bus, 2005). Levin et al. suggest that this reflects the attention that both children and parents pay to the child's name, and that children's attention to their own name leads to an understanding of print that they can then use more widely. In the U.S., most children can write their name by 4½ years of age, although they may make errors on some of the letters (Treiman & Broderick, 1998). Name writing appears to correlate highly with other print-related skills, such as letter naming and general print knowledge (Welsch, Sullivan, & Justice, 2003).

Although young children often know a good deal about the visual characteristics of their own printed names, their knowledge of their names is rather limited in other

ways. Although the children may recognize a particular set of symbols as standing for their name, they may have no idea about how the string does so. They may not know why *that* particular sequence of letters composes their name, as opposed to any other, or how the letters in their name are used in other words with similar sounds (Villaume & Wilson, 1989).

Children's Knowledge of Letters

In many societies, preschoolers learn about the letters of the alphabet through activities such as singing alphabet songs, hearing stories with letters as characters, and reading alphabet books (Aram & Levin, 2002). Also, children are encouraged to identify the letter shapes by their names. Letter naming is related to a child's understanding of written language more generally (Molfese, Beswick, Molnar, & Jacobi-Vessels, 2006). In the U.S., as in a number of other countries that use the Latin script, many of children's early experiences with letters use uppercase letters (Treiman, Cohen, et al. 2007). Correspondingly, U.S. children are more familiar with the uppercase forms of letters than the lowercase forms (Worden & Boettcher, 1990).

During the preschool period, children's alphabetic knowledge remains focused on the surface features of written language: Children are usually more knowledgeable about the physical shapes of letters and the letters' names than about other features of letters, such as the sounds that correspond with them (Levin, Shatil-Carmon, & Asif-Rave, 2006; Treiman et al., 2006). The importance of shape is further supported by the finding that many of the errors that children make in identifying letters involve letters with similar shapes (Treiman, Levin, & Kessler, 2007). Attention to shape in the learning of letter names may reflect the role of shape in vocabulary learning more generally (Treiman et al., 2006). However, the focus on identifying shapes and memorizing letter names may distract children from thinking about the function that letters play. Children may not be aware that letters function as symbols for sounds – an important aspect of learning to read and spell. Thus, although children often come to recognize the names and shapes of the symbols of their written language from their early informal experiences, it may be some time before they put this knowledge toward the learning of the spelling–sound correspondences that are required to read and write.

Deeper Features of Language

Children may begin to learn about the deeper nature of written language through informal conversations with adults. To understand the deeper nature of written language, children need to understand that written language is glottographic (Sampson, 1985). That is, writing is based on the sounds of speech. Children must learn that printed language symbolizes something other than itself, and in particular

that it symbolizes spoken language, which is itself a symbol. Writing thus differs from drawing, which symbolizes objects directly. A picture looks like what it represents: A drawing of a dog bears a surface resemblance to the dog it depicts. The written word *dog*, in contrast, symbolizes a spoken word in English, which in turn represents a dog. The printed word *dog* does not look like a dog; the features of the word do not correspond to features of the object. To go beyond their understanding of the surface features of print – to learn how to read and write – children need to understand the deeper nature of written language.

Young children appear to lack an understanding of how meaning is conveyed in print. One common misunderstanding is to think of writing as a form of pictorial representation. That is, young children often assume that words get their meaning through symbolizing features of the object directly. Although children may distinguish writing and drawing on the basis of their visual features, as the research mentioned above suggests (e.g., Levin & Bus, 2003), children appear to think that the manner of representation is similar across these two symbol systems.

Research suggests that children think that several features of the object referred to, especially size, are part of the way in which it is symbolized in print. For example, young children sometimes assume that the length of a printed word should relate to the size of the object that the word represents (Bialystok, 1991). When shown the written words *cat* and *caterpillar*, English-speaking children often presume that the larger word, *caterpillar*, goes with the larger object, a cat. Swedish-speaking children have been reported to do the same (Lundberg & Tornéus, 1978). Anecdotal reports suggest that some young children believe that this length–size correspondence should be reflected in their own names as well, requesting that their names be written with more letters when they get older (Ferreiro & Teberosky, 1982). Children's tendency to prefer more letters for larger objects also appears in their own attempts at writing. When attempting to write two words, say *snake* and *butterfly*, Hebrew-speaking children reportedly sometimes use more symbols, or space their symbols farther apart, when writing *snake* because snakes are longer than butterflies (Levin & Tolchinsky Landsmann, 1989). Similarly, an Italian 5-year-old wrote *cane* (dog) and *cagnolino* (puppy) with the same three letters, but made the letters smaller in the latter case (Pontecorvo, 1985). Hebrew-speaking 4- and 5-year-olds have also been reported to use more letters when writing words that denote a collection of objects, such as *forest*, than words that denote a single object, such as *tree* (Levin & Korat, 1993).

Some reports suggest that children may attempt to symbolize the color, location, and number of objects in their attempts at writing. For example, children may use a green crayon to write *cucumber* and a red one to write *tomato* (Levin & Tolchinsky Landsmann, 1989). Children's attempts at writing may also show a tendency for correspondence between the object and its location on the page. For example, when given a blank sheet of paper, some children will write *grass* at the bottom and *bird* at the top (Levin & Bus, 2003). Homer and Olson (1999), surveying children's developing ability to write different types of phrases, showed that some children thought that the number of objects being discussed should be directly reflected in the words used to symbolize those objects. They asked children to write *two dogs*,

red dogs, and *no dogs*. In response, some children made two similar symbols to represent *two dogs* and nothing for *no dogs*, insisting that *no dogs* cannot be written. Also, when the researchers showed children the printed phrase *two dogs*, and then covered up the word *two*, some children reported that the writing said *one dog*. Although many of these reports are anecdotal, collectively they suggest that children's early attempts at writing are influenced by thinking of writing as a form of pictorial symbolization. These findings are particularly interesting given the previously discussed research suggesting that children make some differentiations between writing and drawing in recognition and production. Together, these results indicate that children recognize a distinction between these systems but do not understand the underlying reasons for it. Children who see that there is no straightforward mapping between features of objects and the written words that symbolize them are left without a way of making sense of writing. They may default to thinking of writing as some kind of system of pictorial symbolization because drawing is a symbol system that is more familiar to them. Indeed, research has shown that, by the age of three, children possess a general understanding of drawings as intentional objects (Gelman & Ebeling, 1998; Bloom & Markson, 1998).

Young children also appear to have difficulty understanding that printed words have stable meanings. Children often take cues for the print's meaning from objects near the print. Thus, in studies where a puppet moves a card with a printed word from being near one object to being near another in a seemingly accidental way, 3-year-old children often change their reports of what the word says to reflect the object closest to the card (Bialystok, 1991, 2000; Bialystok, Shenfield, & Codd, 2000). For example, children report that a card with the word *doll* says *doll* when closest to the picture of a doll, but then report that the word says *cat* when placed under the picture of a cat. Children do not make the same mistake as often with pictures, even when the pictures do not look like the objects in question. Children appear to use the intention of the person who drew the picture to fix the picture's meaning (Apperly, Williams, & Williams, 2004). Children do not use the same method to determine the meaning of words. Even when an adult writes the word on the card while the child watches, presumably conveying the intention to write a particular word, the child often assumes that the word says different things depending on the object to which it is closest (Bialystok & Martin, 2003).

How do children come to understand that words symbolize speech? Bialystok (1992) argued that children go through a lengthy developmental process, taking place in three stages, to reach the appropriate understanding of the nature of written language. The first stage involves rote memorization of the alphabetic sequence, as done through singing the alphabet song. This ability to recite the alphabet does not entail that children can recognize the individual letters. Transition to the second stage is marked by the ability to recognize and produce individual letters. However, even at this stage children lack a full conception of how these basic elements combine to make meaning. Children can recognize *d*, *o*, and *g* without the additional understanding that, when placed together in that order, those letters represent a distinct, stable meaning (much less that the meaning they represent is *dog*). This further level of understanding appears in the third stage, when children master the

significance of the sequence of letters in a word and how this conveys meaning. However, the research discussed in this chapter suggests that the last stage of this process may need to be refined: young children may not recognize that writing is symbolic and how it is symbolic at the same time. Children appear to understand that writing is distinct from other symbol systems and that it conveys meanings prior to understanding how it does so.

How might children begin to learn about the glottographic nature of written language? In a recent study (Robins & Treiman, 2009), we proposed that parent speech about writing helps young children to do this. In various domains, there are patterns in parent speech that serve as cues for how to understand aspects of the world (Bloom & Wynn, 1997; Gelman, 2003). For example, parents' use of generic noun phrases such as *birds lay eggs* and *dogs have fur* may invite children to presume that laying eggs and having fur are properties that refer to the birds and dogs generally, and not just some individual birds and dogs, even though these are not explicit statements about the essential features shared by members of a species. We propose that similar clues about the nature of print may be available in parents' speech.

To test the idea that children begin to learn about the nature of print through implicit clues in everyday conversation with their parents, we conducted a series of analyses using CHILDES, a database containing child language transcripts from many researchers (MacWhinney, 2000). All of the transcripts we analyzed involved parent-child conversations in English, most of them in the U.S. The conversations occurred when the children were between 18 months and 5 years of age, and transcripts from a total of 607 children were included in our analyses. These transcripts were collected by many researchers for a variety of purposes. We found that parents do speak about writing with their children, even when the children are quite young. Given this, we explored the specifics of parent speech about writing to better understand the types of information that children receive at home.

We began by examining the way in which parents speak about speech and writing as similar. For example, a parent may use the word *say* to refer to both language systems (e.g., *What did you say?* or *What does that sign say?*). The words *name* and *word* can also be used to refer to units of the written language, much as they can be used to refer to units of the spoken language (e.g., *I just wrote my name* and *that's not a nice word to use*). Using *say* to refer to both speech and writing may help children to realize that the two systems symbolize the same thing (namely, language). Further, understanding that the same items – names and words – can be objects of speech and print may guide children toward understanding print's glottographic nature. From the earliest age we examined, parents use *say* to refer to spoken and written language and talk about both names and words as objects of writing. However, parents tend to focus on names as objects of writing, which may be related to other findings, discussed above, that children's own names play an important role in their early understanding of print (Levin & Aram, 2004; Treiman et al., 2006, 2007).

In learning about print, children need to understand how written language symbolizes spoken language. Print does not represent the ideas of spoken language in

an arbitrary or loose fashion. Rather, written language represents spoken language precisely, symbolizing specific units of speech. The same three letters, in the same order, must be used every time *dog* is written, whereas pictures of dogs may vary in how they depict dogs. Children need to know that writing and drawing are different in this way. Parents could help children do this by making syntactic distinctions in their discussions of the two systems. In English, the verbs *draw*, *spell*, and *write* differ in whether they require a determiner when taking concrete, singular terms as their objects. *Draw* does; *write* and *spell* do not. For example, it is appropriate to say *draw a kitty* but not *spell a kitty* or *write a kitty* (unless one is specifically asking a person to write both the word *a* and the word *kitty*). We found that parents almost always use a determiner with *draw* and almost never with *write* or *spell*. This result is particularly interesting given that children's writings and drawings look rather similar during these early years and that children themselves often confuse the two systems, saying things like *draw my letters*. The syntactic distinction in parents' speech could potentially help children to understand that the two symbol systems are different, prompting the children to investigate further how the written language works. Of course, children can learn to differentiate these two systems without a distinction in determiner use, given that there are a number of languages that lack this distinction, including Hebrew. However, in languages where such a distinction exists, it may serve as a clue for children to begin differentiating print from pictures.

These results suggest that, as in many other domains, parent speech provides information that children can use in understanding the world around them. A good deal of information about the written language is available to children in literate societies prior to their receiving formal instruction. Learning about the deeper features of writing may also begin informally.

Conclusions and Implications

We have discussed various ways in which children can learn about writing prior to receiving formal instruction in school. Although explicit instruction about spelling-sound relationships may be required for children to master reading and spelling, children learn a great deal about how writing works through informal interactions with their parents and other adults. These interactions take a variety of forms. Through exposure to print, children become aware of a number of its salient surface features. For words that are particularly important to young children, such as their own names, children may even learn about language-specific properties from these experiences. Other activities, such as singing songs that include the letters of the alphabet and watching their parents write letters, teach children about the names and shapes of letters. All these experiences teach children about the surface features of writing. Children may also begin to learn about the deeper features of writing through informal interactions with adults. We have discussed preliminary research that suggests that children could potentially gain information about the symbolic

function of writing through the conversations in which they engage at home. Through implicit cues in parent speech, children could begin to understand that writing works differently than drawing, and even that it symbolizes speech, before learning how it is that writing does so. Thus, a host of information about the written language is available to children before formal schooling begins. Although formal instruction is required for many of the particular spelling-sound relations, early informal experiences may provide the foundation for this further mastery.

The research we have discussed has focused on children in literate societies. These children are similar to one another in that written language is a prominent feature of their environments. However, there may be important differences between the print environments of young children, as in how much time their parents and preschool teachers spend writing with and for them. Understanding these individual differences, and how they affect preschoolers' knowledge of print, is an important topic for future research. Previous studies have tended to focus on how often parents read books to their young children as an important determinant of later literacy skill. However, given that young children do not spend much time looking at the print in books and do not get many of their ideas about print from books, book reading may not be as important for print knowledge as was previously thought. By examining the other opportunities that children have to learn about print in homes and preschools, and how these opportunities may differ across groups, we can work to better prepare young children for formal instruction in reading and writing.

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