

Research in Review

Symbol Makers, Symbol Weavers: How Children Link Play, Pictures, and Print

Anne Haas Dyson

Lena and Rachel are sitting side by side at a work table in the kindergarten room. With markers and paper, they are planning an adventure—a treasure hunt. Their peer Shariffa overhears their talk and adds her own comments.

Lena: "It's [the treasure's] going to be somewhere inside. And Rachel, let's say that it's somewhere that I've never been. (using a suspenseful tone) Know what that is?" (pointing to her map; see Figure 1)

Rachel: "The attic!"

Lena: "Right!"

Shariffa (in a scary voice): "They're dark."

Lena: "Right! They sure are. (Lena turns to Rachel, leaving Shariffa in the real world.) This is the door, Rachel. You come in. Go to the steps. (Lena is walking across her map with her fingers.) Go up, up, up, up. Treasure! (said very happily, as she points to the first YES on her map) Up, up, up, up. Treasure! (pointing to the second YES on the map) Now here's the map, Rachel But we need a flashlight, or a candle at least."

Shariffa: "I would say a flashlight."

Lena: "Yeah. Candles are dangerous . . ."

Shariffa: "You have to watch it. If you trip, your whole life is dead . . ."

Lena (to Rachel): "Now what should we make next time?"

Lena and Rachel are creating an imaginative world, and they are weaving the fabric of that world from many kinds of symbolic materials. They are engaged in sociodramatic play, a play enacted primarily through their talk as they plan the treasure hunt. At the same time, they are involved in constructive play; their treasure maps are interesting adaptations of their usual ways of drawing houses. Finally, they are writing and reading as well, for in their maps Yes, not X, marks the spot.

As this small episode of classroom drama illustrates, during the early childhood years children become fluent and inventive users of symbols, including gestures, pictures, spoken words, and written ones (Vygotsky, 1978; Gardner, 1982; Nelson, 1985). Like the adults around them, they invest certain kinds of forms—movement, lines, sounds—with meaning, and thus they begin to use the movements of *play*, the lines of *drawing*, and the sounds of *language* to represent or symbolize the people, objects, and events that comprise their world. This ability to organize and express inner feelings and experiences

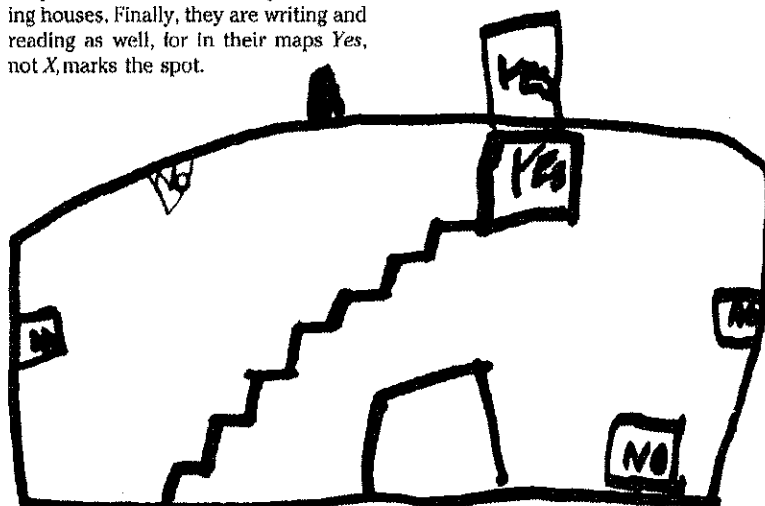
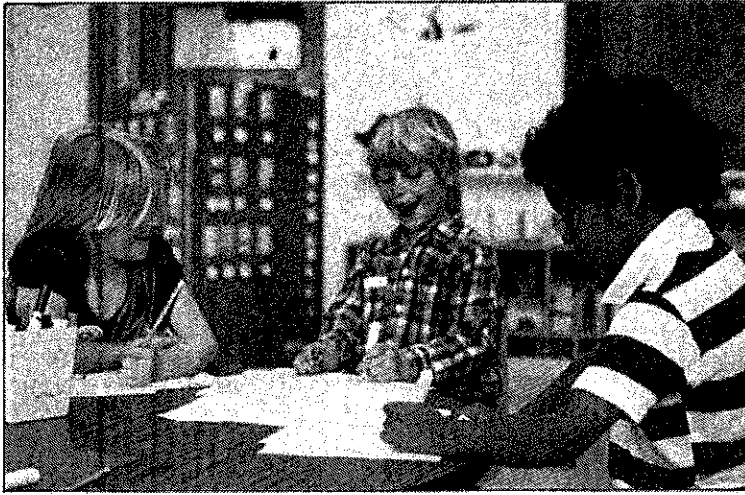


Figure 1. Lena's treasure map

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through shared gestural, visual, and verbal symbols is a part of children's human heritage; meaning making, like eating and sleeping, is an inherent part of being alive (Langer, 1967; Winner, 1989).

In the following pages, I discuss the complex developmental processes that allow children like Lena and Rachel to use symbols not only to represent their experienced world, but to construct imagined ones. I emphasize the critical role of art and of play in children's growth as symbol makers, particularly as makers of written symbols. For to understand the development of written language, we cannot look only at early scribbles and letter-like marks. Literacy development is interwoven with each child's growth as a symbol user and a social being (Vygotsky, 1978; Dyson, 1986, 1989). Thus, I illustrate the developmental links children themselves make between play, pictures, and print.

Symbol-making begins

During the early childhood years, children's ways of relating to the world are transformed (Werner & Kaplan, 1963; Piaget & Inhelder, 1969; Vygotsky, 1978). Initially, children act on the world directly. Given a marker, the very young may grasp, shake, and taste it, bringing the marker into the early multi-sensory world of infancy. As children participate in the recurrent activities of their daily lives, they come to

understand that people and objects have an existence of their own (Piaget & Inhelder, 1969; Nelson, 1985). Thus, children begin to contemplate as well as to interact with the people and things surrounding them (Werner & Kaplan, 1963).

As part of this coming to know their world, children explore the symbolic materials available to them: the sounds of language, the movement of their own bodies, the graphic marks of drawing and painting implements, the structural possibilities of blocks and other constructive media. Each medium offers children distinctive physical and visual properties to explore (Golomb, 1974, 1988; Smith, 1979). And so, the child "does what he does, it [the medium] does what it does One discovery leads to the next as he responds to the

During the early years children become fluent and inventive users of symbols, including gestures, pictures, spoken words, and written ones.

material and as the material responds to him" (Smith, 1979, p. 21).

In time, children discover a link between a salient feature of a medium and a salient feature of their experiences. For example, imagine a young child exploring the sorts of marks she can make with a crayon. She draws a jagged line and then studies that line. "Stairs," she says, and in that moment, she brings together her past experiences of climbing up the steps and her present drawing. A new possibility for forming lines has become more salient, as has the zigzagging shape of the stairs.

Early symbols, like jagged lines to represent steps or circles with emanating lines to stand for humans, are no longer seen as evidence of children's immature understanding of the world (Piaget & Inhelder, 1969). Rather, they are viewed as evidence of children's creative capacity for discerning links between a symbolic medium (like the crayon strokes) and some thing (like steps) or some feeling (Werner & Kaplan, 1963; Arnheim, 1974; Goodnow, 1977). It is this ability that supports young children's acquisition of the basic symbolic tools of their culture. In time, children can use these tools to transform their experienced world into imagined ones in which they are in charge.

Children's developing symbolic repertoire

Researchers associated with Harvard University's Project Zero have studied intensively children's developing powers as symbol makers. In their longitudinal study, Gardner and Perkins (1989) observed nine middle-class children from their first birthday through the early school years, focusing on common patterns and individual differences in the children's use of blocks, clay, drawing, gestural-bodily actions, language (especially metaphor and storytelling), music, and pretend play.

In discussing the results of this research, Gardner and Wolf (1987) emphasize both the separate developmental histories of each symbolic medium and the "waves" or basic psychological processes that interrelate them. These waves are ways of representing experience that begin with certain kinds of symbol making but influence many others as well. The first

wave, referred to as "event or role structuring," reflects children's understanding that people, as agents, assume varied roles and carry out varied actions. During the first two years of life, children begin to use gestures for make-believe actions, like pretending to eat or to sleep. They also utter their first words, which are tied to the recurrent actions of people and things in their daily lives (see discussion in Genishi, 1988).

This early understanding of symbolizing roles occurs not only in talk and play, where it seems to fit comfortably, but also in children's ways of using other media, including drawing. Mathews (1984), who studied his own three children, provides many examples of children's pretend play while drawing. During their second year of life, his children applied their sensorimotor actions to drawing, supplemented by speech, and began to enact small dramas; the children soared and zoomed on paper, as their markers moved like planes, cars, and other imagined objects.

In time, around age 3, children begin to notice similarities between salient physical features of the world and their

Art and play have critical roles in children's growth as symbol makers.

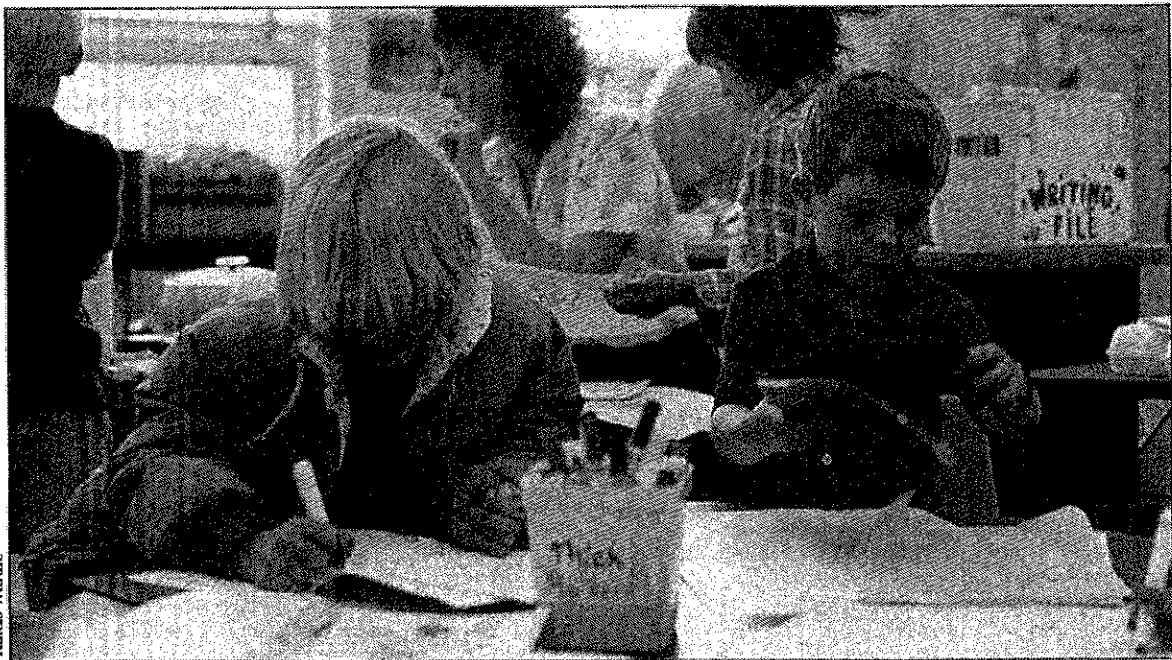
own constructions. They begin to make use of these similarities to create pictorial symbols, like the child who noticed the similarity between her jagged lines and the steps. On a future day, she may deliberately attempt to draw stairs, just as Lena did in drawing her map. Similarly, a child might place sticks in a clay ball to make a person, or place a large block on four smaller ones to make a car. Gardner and Wolf (1987) refer to this ability to create by using the physical features of objects as the second wave, "topological or analogical mapping."

Eventually, children are able to use their numerical understanding to engage in "digital mapping." Thus, a child's person might have an exact number of fingers, rather than a bunch of lines, and her stairs an exact number of steps. Lena, for example, tried to

match the number of times she said "up" to the number of steps she and Rachel would have to climb to find the treasure.

Finally, around age 5 or 6, children become capable of using notation systems, sometimes referred to as "second order symbols" (Vygotsky, 1978); they can use one sort of symbol (for example, written letters, like Lena's YES) to represent another (spoken words). Lena's map reflects her understanding of another kind of notation system—mapping. One kind of symbol, the map, is being differentiated from an earlier controlled kind, a picture (Goodnow, 1977; Wolf et al., 1988). The common roots of maps and pictures are evident in Lena's efforts—the rectangular shape representing her attic rests on the top of her basic house structure, just as her chimney does.

Both Mathews (1984) and Wolf and Perry (1989) emphasize that children do not abandon old ways of symbolizing as they refine new ways; rather, they add to their expanding symbolic repertoire. Children become increasingly sensitive to situations where certain kinds of graphic symbol making are appropriate, just as, over time, children become in-



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creasingly sensitive to adjusting their speech so that it is appropriate for speakers of different ages and roles (Garvey, 1984). For example, Figure 2 may seem to be the drawing of a preschooler who was exploring or playing with a marker; the swirls, then, may be a nonpictorial design, or perhaps the "tracks" left by a marker being used like a racing car. Actually, Figure 2 is a drawing by a sophisticated third grader named Mitzi. She used schematic drawing to illustrate her written adventure story about kidnapping. Figure 2 is a depiction of the dramatic moment when a fair suddenly disappears in a swirl, leaving only a piece of gold with a "kidnapping signal" (KS) on it.

How young symbol makers write

Understanding the broader developmental history of how children encode meaning in varied symbolic forms contributes to our understanding of how children may come to encode meaning in letter graphics. Indeed, the letters of the alphabet often first appear as art forms in children's drawings (Kellogg, 1970). For example, sideways *I*s can serve as spaceships, *B*s are useful to "write" (draw) eyes, *M*s to draw ears. Children even refer to the drawing act as "writing" sometimes (Dyson, 1982).

In their earliest writing, young children do not precisely encode meaning. Rather, as in their first drawings, it is the act itself—the gesture and any accompanying talk—that makes the writing meaningful (Dyson, 1983; Luria, 1983). Children make lines and letter-like marks that approximate the writing of those around them. They may read their own writing or ask others to read it (Clay, 1975). They may incorporate their writing into dramatic play, making grocery lists, taking phone messages, and generally carrying on daily business (Schickedanz, 1978; Jacob, 1984).

Just as children begin to represent figures in addition to action in their drawing, they come to use letters to represent particular objects. Ferreiro (1980; Ferreiro & Teberosky, 1982) has carefully studied the evolution of young children's understanding of the alphabetic symbol system. In her work, conducted in Latin America, she uses Piage-



Figure 2. Mitzi's disappearing fair

tian clinical interview techniques as children engage in a range of literacy tasks. Within the context of these tasks, children seem to progress from simply making letters to hypothesizing a direct and concrete relationship between features of those letters and their intended meaning. Children seem particularly sensitive to the size and age of the referent. For example, one 4-year-old, Marianna, asked for a small number of letters to write her own name and "as

much as a thousand" to write her father's name (which had only two syllables).

Such hypotheses introduce many puzzling circumstances for children. For example, Marianna will learn that her own name has in fact more letters than her father's. Eventually, children begin to search for some sort of reliable one-to-one correspondence between the letters of a name and the name itself, a behavior that recalls Wolf and Gardner's "digital wave." This search will lead children to begin to use characteristics of the *sound* of the name to invent spellings, evidence that children are beginning to use written language as a second order symbol system. Read (1971, 1986) provided the seminal studies of the evolution of children's alphabetic spellings and the rule system underlying how they relate sounds to letters. As with symbol making in general, children's first efforts are not signs that children have "learned" or memorized the wrong spelling but, rather, signs that they have intelligently and creatively invented a new way of representing their world. Their spellings, like a 5-year-old's *BS* for "basghetti," can be

Around age 5 or 6, children become capable of using notation systems, such as alphabet letters. They often first appear in children's artwork.

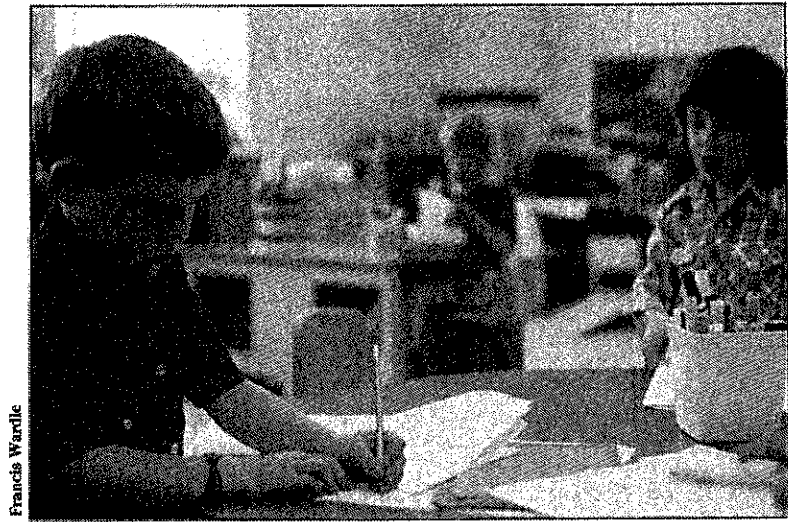
as captivating as their pictures and, like all children's symbolic efforts, will evolve over time as their understandings become more sophisticated.

In this review, we are concerned not just with children's invention of spellings for words, but with their use of written words to invent worlds. As Lena illustrated, to create imaginary places, children weave written words together with talk and drawing, calling upon all their symbolic powers. Typically, the writing itself may label an important figure or object, as Lena's use of YES to represent a treasure, or it may represent the actual words spoken by a drawn character (Dyson, 1982; Newkirk, 1988).

In time, children must differentiate among all the symbol systems they use as authors. In one sense, they must learn not only to include writing within their play, but to play together within their writing. As Mitzi's drawing in Figure 2 suggests, this developmental challenge does not mean that children abandon drawing and talking but, rather, that they gain greater control over their distinctive powers, as when they draw an illustration or plan an oral performance of a text. An important resource for this differentiation among symbol systems is the talk children themselves engage in about their efforts. To understand the contribution of peer talk, we must first consider how children use symbols as social tools with their friends.

Creating imagined worlds through shared symbol making

Symbols are social tools, and, as such, they help children to gain distance from immediate experience and to consider how the world might look to someone else, skills that support and are supported by interaction with others, including teachers and peers



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(Piaget & Inhelder, 1969). Over time, children become more effective storytellers, more responsive listeners, and more collaborative players (Miller, Potts, & Fung, 1989).

As they do in storytelling, in their play children transform emotionally significant experiences in order to express and interpret them, to give outer form to their inner worlds. In a discussion based on observations of 15 preschoolers who were "master players," Fein (1987) suggests that significant emotional experiences are marked by qualities of sound, motion, and tempo, and that children use these qualities to create dramas in which people scream or soothe, rush or relax, worry or reassure. Thus, play is a "canvas" in which young children can symbolize ideas and feelings through gestures and speech. As children grow as symbolic players and social beings, they paint the canvas of play collaboratively with their friends.

Drawing combined with talk can quite literally become a canvas for children's shared dramas. Yet, drawing is

often considered "constructive work" and thus separated from pretend play (Rogers & Sawyers, 1988). Researchers who study children's graphic symbolism stress the interaction between children and their own products. Children examine their marks, see further possibilities in them, and then attempt to express new ideas (Golomb, 1988). In centers and classrooms, though, the dialogue between children and their papers can include other people, as children's skill as collaborative storytellers and players infuses their drawing (Dyson, 1989). Consider, for example, kindergartners Nate and Chiel's playful drawing and talking:

Nate is sitting next to Chiel today. He has just drawn a person jumping off a diving board (see Figure 3). As he works, he calls Chiel's attention to his efforts.

Nate: "Boing, boing, boing. (bouncing in his chair) Boing, boing, boing . . . Chiel, I made a picture of somebody diving off the diving board. And there's no water in the swimming pool. Hah hah. Hah hah."

Chiel: "Oh! I have no head." (feeling above his head and playing along with Nate's drama)

Note: "WHAT?! I have no head! HELP ME!"

Chiel announces that he is drawing space (i.e., the solar system and, amidst the system, a rocket ship). Nate discusses the planets with Chiel, including the fact that Mercury is the hottest planet because, as Nate explains, it's closest to the sun. Nate returns to his own piece.

Children's first efforts at spelling are signs that they have intelligently and creatively invented a new way of representing their world.

Nate (stops drawing): "Chiel! Chiel! I know. That's what we could do. You know what?"

Chiel: "But with the sun, I almost burned my eyeballs off."

Nate: "But here is the sun [on my picture]! Look! Look! Look! The person, the person does EEEEEEEWWWWWWW. Dum dum." (dramatizing person diving up toward the sun and then heading toward the water)

Chiel: "No! Make him head towards the sun. No, make it—"

Nate: "Look, look. Let me show you where the sun is . . . Look! Look! Chiel, look! OWEE! I'm getting burned!" (laughs)

Chiel: "Make a sun right here [in the path of the diver]. Make a sun right there."

Nate: "No. I'll make—No, I'll make um um Mercury right here." (Nate adds the marks under the diver's head.)

Chiel: "Mercury. Yeah! He's gonna bump into it."

Although Nate and Chiel view themselves as drawing, they are engaged in the complex negotiations described by many observers of children's dramatic play (e.g., Forbes, Katz, & Paul, 1986). They negotiate between the real world and the imagined one as they discuss the actual workings of the planets and the sun, but then play with those facts for the sake of the drama—the unfortunate diver bangs right into Mercury. They engage too in social negotiations between themselves; Nate

To understand the contribution of peer talk to literacy development, we must first consider how children use symbols as social tools with their friends.

asserts control and makes the final decisions about the unfolding plot. Further, Nate makes symbolic negotiations as well: Some of the drama is in his talk, such as the poor diver's screams; some is in the picture, including the exact location of the planet; and some is in the text he dictated, particularly the bodily harm the diver endured. That text, though, was simply a plot summary and, as such, did not capture the dramatic quality of his drawing and talking: "Once upon a time there was a diving board. And a person dived off . . . And he went through Mercury and broke his head . . . and his stomach."

How do children's written words themselves become sites for dramatic, vivid adventures? This was the question I investigated during a recent study in

an urban magnet school, a study in which I met Lena, Nate, Chiel, and Mitzi. I focused on the changing role of writing in 4- to 8-year-old children's symbol making and social interactions during a daily composing period (Dyson, 1989).

The observed children initially relied on drawing and talking to carry much of their story meaning and, also, to engage their peers' attention, just as Nate did. Their writing and dictating was primarily a description of their pictures. In time, though, the children began to attend to each other's reading and planning of their texts, evidencing the curiosity children have about what their peers are doing (Garvey, 1986). Their playful and critical talk thus engulfed their writing and helped it become a legitimate object of attention, separate from their pictures.

Children began to consider critically the relationship between their pictures and their texts as they assumed more deliberate control over the kind of information they would include in each medium. Gradually, their written stories contained more narrative action, their pictures more illustrations of key ideas, like Mitzi's sketch of the fair's disappearance. Moreover, they began to use writing to playfully engage their friends, behavior Daiute (1989) observed in

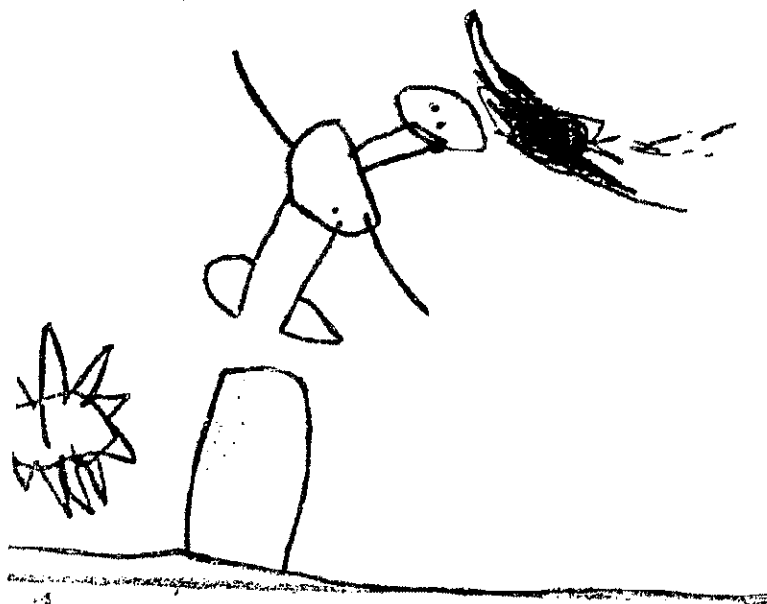


Figure 3. Nate's doomed diver

In their play, children transform emotionally significant experiences in order to express and interpret them.

older elementary school children as well. They used friends as characters in their stories, and they also began to deliberately plan to include certain words or actions to amuse or tease them. Thus, the children came to understand that writers and their readers interact within—play within—the words, and that, as authors, they were in charge of the interaction.

Fostering children's lives as artists, authors, and friends

The implications of this article for teachers are inherent in the examples of children it has presented. First, educators should *allow children many opportunities to freely use the arts*—to draw, play, write, dance, and sing. The transforming and elaborating upon experiences through symbol making is one of children's major ways of learning about their world and about each other as well. Children are not copying the world but examining it and, through imaginative creations, manipulating it to express their ideas and feelings about it. They do not need dittos and worksheets but play corners, blank sheets of paper, crayons, markers, paints, and other constructive materials with which to invent worlds.

As children both select and make use of available media, teachers should expect individual differences in how children organize and interpret their worlds. For example, some children are particularly interested in telling a story about human relationships and prefer storytelling and dramatic play; for them, even drawing may serve as a dramatic medium. Others are more attentive to the structures that exist around them, preferring to construct patterns in both drawing and play with three-dimensional objects (Gardner & Wolf, 1987).

Children's interest in one kind of symbol making, writing, is best viewed within the context of children's artistic and social lives, as that writing is couched within their drawing, talking, and playing. Therefore, a second implication is that, beginning in the early years, teachers can *help connect print with the liveliness of children's use of other symbolic forms*. As Paley (1986)

has illustrated, even 3-, 4-, and 5-year-olds can collaboratively transform themes of their dramatic play into dictated texts and back again to play.

Children's use of drawing, social talk, and dramatic play helps infuse meaning into their written language. Further, children's interweaving of these media poses developmental challenges because, eventually, they must differentiate and gain control over the unique powers of each medium. So, a third implication for teachers is to *talk to children about their efforts and, in that way, to help them reflect upon their processes*. Although the charm of young children's products is clear even to adult artists (Rosenblatt & Winner, 1989), teachers might best value children's processes and the discoveries children are making through those processes about each medium, about the world, and about themselves as well. Since children's products often belie their messages, talk about both products and processes must be informed by careful observation, and it must allow each child to stay in charge of his or her intention (Genishi & Dyson, 1984). For example, young children feel no compulsion to put into written words the meanings they express through drawing and talk. The differentiation and control of these varied media is a gradual developmental process, one we nurture but cannot force.

Fourth, educators can *surround children with engaging examples of the symbolic products valued in their culture*. These stories, songs, poems, pictures, and other objects and events provide children with both content to stimulate their imaginations and new forms to reflect upon and perhaps incorporate in some way into their own efforts. As children develop and become sensitive to sounds and images, they may turn a more observant eye, a more

In your classroom, what do you do to foster children's lives as artists, authors, and friends?

sensitive ear to the qualities of life around them (Feeney & Moravcik, 1987; Rosenblatt & Winner, 1989).

Finally, self-expression, the shaping of inner worlds through outer forms, seems to be nurtured by the tensions between the need for social connection and for personal voice. When symbol making becomes a significant aspect of one's social life, it takes on new urgency. Yet, time to concentrate on one's own images and stories is also important (John-Steiner, 1985). So teachers might best *allow children the interactive space to pursue their own rhythms, their times for joining with others and their times for pursuing their own agendas*.

In considering the role of symbol making in children's lives, we should not assume that the developmental path is from child drawer to adult artist or from child story writer to adult novelist, any more than we view the child player as an actor in the making. Stories, pictures, dramas—these are children's ways of giving shape to their experiences, of figuring out who they are in relationship to the world and to each other. These are also children's ways of making their own the tools that will serve them throughout their lives (John-Steiner, 1985). Humble and great, we doodle and sketch, share stories, and play out possibilities in our minds, enriching our adult lives with the child still within us.

I studied the changing role of writing in 4- to 8-year-old children's symbol making and social interactions during a daily composing period.

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