Five-year-old Elliott picked up two long strips of colored paper, waved them in the air, and began his paper structure (illustration 1). He thought about this and announced, “I know, I’ll fix it with the stapler.” He clipped together the ends of each strip, creating six or seven oval shapes. He experimented with different shapes, then asked for more paper. Then he asked for a paper plate to “make them all stand together.” When Elliott finished joining the strips of paper on top of the plate, he announced proudly, “I’ve made some fish swimming in a tank!”

Rosalind, a seventh grader, was thinking about creating a multiple plane structure. She flexed a sheet of oak tag between her hands, creating rippling effect. She stopped, then built her structure (illustration 2). “I folded the oak tag so it would bend ‘round the inside part, so you could see how the bends were gradual. Then I thought you could make the outside bend ‘round the inside part, so it looked like they both went together... you know, a bit lik
shell, it was hard to figure out how to make it all stand up, but I found it would bend back at the bottom where I made the folds. You know, if you are careful, you can flatten it all out again, and when I made the folds, you can bend it into a quite different shape.

Elliott and Rosalind are acting in developmentally appropriate ways: both are acting on materials with intentions of changing them, yet the range, complexity and outcomes of their actions are vastly different. Elliott, for instance, first discovered that paper strips will curve. Then he used this information to create a series of curved oval shapes. He organized the oval shapes on the paper plate. Elliott formed his idea about the fish tank. Rosalind, however, formed her idea in advance and directed her action on the paper. In the process of folding, bending and twisting the oak tag, she gave substance to her idea — she constructed a complex and subtle series of planes which represented the idea of spatial volume.

While art represents experience, the development of children's understanding about media plays a crucial role in their ability to reflect on, organize and shape their most important experiences.

The beginnings of artistic language

A kindergarten group was given some small sheets of newspaper and a cup of wheat paste. The teacher discussed the possibility of changing the flat paper. Then she showed the children how to cover the paper with wheat paste so that each change would stay in place.

The children experimented with these small sheets of paper, the teacher gathered their experiments.

Then the children were given egg cartons and were asked: "How is this the same or different from the paper we just used? Would you change your egg carton in some places, or would you change it all over?"

When the pieces were dry and hard, the children asked to paint them. The teacher again offered the children some choices: "Which colors will you use? Will you use a lot of one color and less of others? Will you choose to paint all of your piece or only some special places?"

In carefully examining this teacher's method, it is evident that the children in the group were, for the most part, at a pre-representational stage of development — they were developing concepts about the material. Some children were still engaged in exploratory activity: learning how to control, repeat, vary and invent actions. Others were a little more advanced, combining their actions and learning to organize rich and complex designs. All the children, however, were engaged in learning through acting on their materials. By creating transformation, they were learning to form basic pre-representational visual, relational and expressive concepts. ("Developing Minds," *School Arts*, Vol. 80, No. 1).

Sara explained how she made her construction (illustration 3): "First, I made a lot of crumpled shapes with the paper by squishing it all up with paste, then I made straight ones by folding it up. I chose the straight ones for the box because they all went together, and they went right up to the top part. This part is all flat, this part is pointy and this part sticks out."

Sara's construction and her accompanying explanation reveal the purposefulness behind pre-representational learning. For instance, we see that Sara chose to explore two actions on the newspaper — crumpling and folding. When asked to think about changing the egg carton, she immediately responded to the strong visual pull of the vertical (top-bottom) divisions of the carton, and chose to use the long lengths of the folding paper rather than crumpled paper. Clearly, her visual response to the egg carton had determined her choice of paper shape. She was also careful to consider the relationships among the parts: she tells us that some places are flat and some are pointy and one place sticks out. When asked by her teacher if she had made "a special idea," Sara replied, "It's an in and out design." This last statement tells us that Sara's completed work has expressive content — simply stated, it expresses an idea about going in and out.

The first visual symbols

The children in Jonathon's first grade were given four straws, a scrap of cardboard and some squares of colored paper. The teacher asked them to think about how many ways they could change the straws, cardboard, and paper. The children suggested many possibilities. Then the teacher said: "If we can change our straws, our cardboard, and our paper in so many different ways, which way would you choose to change each one? How would you organize your changes together in one place? Would you choose to make a tall place, or a short place?"

In presenting the lesson, the teacher was mindful that some children were still learning concepts of materials, some were beginning to name their works, and others were making organized symbols. Because of the diverse levels in her group, she did not present a subject matter motivation. Instead, she asked the children to consider ways of changing their materials — to figure out some changes and then organize them in one place. Note that the teacher presented a more complex learning challenge than the kindergarten teacher. She asked the group to consider three different materials simultaneously and stressed selection and combination with a specific focus in view — "Will your piece be tall or short?" In this way, each child in the group was challenged to think and consider their materials seriously and carefully. Yet, they were not pressured to create a representation before they were ready. At the same time, the teacher knew that the motivation was challenging enough to stimulate children who can create organized symbols.

As Jonathon worked with the materials, he carried on a running commentary: "I am going to make all the straws
stand up real tall." With this goal in mind he diligently struggled to make holes in cardboard and then balanced the straws inside them. "No," he said, considering an array of standing straws. "I've got to cut some." He lopped off the top of two straws and delicately balanced a strip of paper across them. "It's a house," he stated. "Now, I want a real one." He concentrated on constructing the tall straw structure and announced, "It's a radio station." Without pausing, he continued folding, bending, and cutting the paper. "It's a chair and a man sitting down, reading the news."

Jonathan was beginning to make connections between his ideas about materials and his ideas about the world. Unlike Sara and other children in kindergarten, Jonathan was beginning to use his materials in the service of new ideas. We see this new developmental step revealed in Jonathan's work and in his commentary (illustration 4). In response to the teacher's question about his motivation, he set out to change his materials in order to create a tall, rather than a short, place. Like Sara, he responded to the strong visual effect of the standing straws. However, unlike Sara, this response prompted the idea of the walls of a house which then necessitated the creation of a roof. Having constructed his house, he was then struck by the relationship between the tall straws and the short house, which initiated the idea for the radio antenna which towers over everything else. Finally, the house and antenna combined to suggest a new idea — the man reading the news.

Jonathan responded to the changes he made in his materials and each change contributed a new aspect to his growing idea. This is evidence of the interplay between mind and sensory logic in the creation of an expressive work.

Visual events

Susan and her third grade classmates were given a piece of oak tag, a small pile of colored squares of paper, and some glue. The teacher discussed occupations of grown-ups and the interactions of people that occur around a workplace. The teacher then urged the children to think about changing their materials in order to construct a three-dimensional composition of their ideas. She discussed whether they would need to make many or few shapes with their paper, and whether the shapes they constructed would need to be near together or far apart.

In presenting this motivation, the teacher knew that all of the children in the group could construct images of basic categories and subcategories of people and objects. She also knew that they were combining these images in the creation of works which expressed interactions between people, between people and animals, and so forth. The subject matter was chosen by the teacher to capture the children's interest. She realized that the subject would lend itself to the discussion of a range of different occupations, interactions, and environments.

Susan described her piece thus: "It's an office with the man sitting at his desk at the front so he can see everything. He has a big chair and a big desk and a special carpet in his office. The lady with the blue carpet is his secretary; the other lady is going somewhere with a message. Both ladies are far away. It's a big office, you know, like those with big windows, so I left the spaces empty." (Illustration 5.)

Susan's conventional ideas about bosses and secretaries is developmentally appropriate for her age level. She tells us a great deal about how she conceives the world of adulthood. Susan's comments also reveal how she used concepts of size, space, and distance in the organization of her ideas. For instance, the man is in the biggest chair, seated at the biggest desk, on the fanciest carpet and occupying the largest amount of space. In contrast, the secretary and the lady messenger merge into the background, indicating they have lesser roles to play in the life of the office.

Representing experience from imagination and observation

The idea of the lesson was complex, and the fourth grade teacher presented it in parts — a different part each week. The first week, the children discussed how they could transform scrap objects such as milk cartons, yogurt containers, bottles, etc. In the second lesson, the teacher discussed the range of the children's ideas. She invited them to consider how they would elaborate on the external characteristics of the object they were constructing (i.e., facial features, arm positions, clothing). While the series of lessons began with scrap materials, the children were left free to decide and organize the additional materials they needed for their constructions.

Dave and Pierce decided to work together on the assignment. They began by covering two bottles with papier-mâché. They suddenly came to a halt and called the teacher for advice. "You see," Dave said, "we want to make a bride and groom, but we're not sure how they look." "What sort of shapes do you have in mind for the bride?" the teacher asked. "Well, a long dress shape and one of those things that flows out behind. She is supposed to have something on her head, too. The man wears one of those black suits with those bits in the back, doesn't he?"

"You have thought a lot about what you need," said the teacher. "How
about trying to find some photographs or pictures in the library? Then you can find out exactly what it is you want to know about a bride and groom.” With that, she sent them scampering to the library with sketch pads and pencils in hand. The boys spent some time on their research, even questioning the librarian. They returned to the art room with enough ideas to get them started again. As they worked, the discussion between them now concerned the variations they could make on what they now understood of a bride and groom’s clothing. Should the dress be full or straight? Would the veil fall over the face or be thrown back? How high would the collar be on the man’s shirt?

As we saw in preadolescent drawing (“Developing Minds,” School Arts, Vol. 80, No. 4), ten- or eleven-year-old children are curious about how things look and work and why they look and work that way. They are also able to appraise their work with a critical eye and make new demands for information about things that capture their interest. Dave and Pierce were very concerned about the individual characteristics of the figures they were creating, and this focused on the clothing of the bridal pair. The teacher recognized this interest and responded by inviting the boys to do research. However, she first made them focus on what information they were going to search for in the library. Helping them to reflect on the content of their curiosity not only gave direction to the search for new information, but also laid the foundation on which the boys could invent variations with the new knowledge they subsequently possessed. (Illustration 6.)

**Ideas in search of forms**

The teacher of a group of fourteen-year-olds discussed the problem of representing movement in the human figure. She showed slides of paintings, drawings, and sculpture made by mature artists. Following the discussion, the group went outside to the sports field to make pencil drawings of figures in action. They were reminded to attempt to capture the action of the figures, rather than to worry about fine details.

Back in the art room, the students continued their discussion of movement in the figure and considered which kinds of lines best enhanced or captured different movements. They were then invited to develop some small exploratory drawings from their earlier sketches and were encouraged to try out variations on the theme of movement using different drawing materials such as charcoal, chalk, colored pencils, pen and ink. When this exercise was completed, the teacher asked the students to select one idea and develop it further in a new material. The choice raised complex questions: Did particular ideas suggest certain materials? Why? What properties did the selected material have which could be explored further?

Jane began by making drawings of basketball players. As she drew, she became intrigued by the movement of groups of players as they passed the ball among them. In the art room, she made six or seven drawings in chalk based on variations of this theme. She chose chalk to draw with because “you make very thin and very thick lines quite easily and the chalk moves fast on the paper.” Having chosen a small drawing (illustration 7) as the idea she wished to develop further, Jane first decided to work in clay. However, as she pulled and pushed the clay she came to the conclusion that “it’s too solid and lumpy for my idea — I need something lighter.” With this in mind, she began experimenting with wire and created a structure which she then elaborated with thin strips of cloth soaked in plaster. Explaining her idea when the piece was finished, she said, “I tried to show how each figure sways in a different way, but each sway follows the direction of the ball, and I left the curves of the wire to show the movement of the ball.”

In presenting the lesson, the teacher of this preadolescent group was mindful that her students were interested in different styles of art, that they were grappling with the relationship between realism and abstractionism, and that they were intrigued by questions of transformation. In addition, she knew that this group of students was interested in how the body moves and functions, and unlike younger children, were able to consider such an idea as the body in motion from different points of view. Even while presenting the group with this difficult challenge, the teacher was also sensitive to the students’ sense of lost competence. She recognized their need to both stay in control of their ideas, yet also to understand more about the materials of art in order to express their ideas.

**Coping with competence: a final word**

Children learn by asking questions, making inquiries and fashioning what they discover into a world view which is part private and personal, and part public and shared. Over time, the conceptions of the world children construct come to include ideas about themselves as part of that world — an awareness of themselves as individual persons.
Art making is part of the fundamental human urge to make sense of the world. It is also part of proving one's competence. In the process of creating paintings, drawings and sculpture, children ask questions of themselves and their world. The questions they pose cause them to reflect, inquire and probe their senses, feelings and minds. As they act on materials, as they transform them from one state of being into another, children "create sense" by selecting, relating, organizing and making concrete what they perceive, think and feel. A sense of competence derives from the growing awareness of mastery — the knowledge that through creating art, a part of the world has been constructed and is now understood more clearly. Similarly, children come to recognize that the skills entailed in art making have value to them as well as to others.

Thus, it is important to respect the nature of children's experiences of the world and the questions they ask. It is equally important to recognize that the materials and processes of art are integral parts of the world of experience. Children learn about the materials and processes of art as they act to shape their experiences: equally, they learn to reflect on and organize their experiences as they shape materials. Children form concepts of materials and of the rules for making representations much as they learn concepts and rules for ordering other aspects of their lives. The more children come to understand about materials and their use in creating representations, the wider the repertoire of tools they have to shape and express their ideas in depth and richness.

Yet, until the years of adolescence when formal/abstract thinking becomes possible, children learn about media and processes in the service of their own interests and purposes — in relation to the subjects they wish to portray. If they are taught graphic skills divorced from contexts and subjects which have meaning to them, if they are asked to tackle problems unrelated to their interests, then their sense of mastery over their thinking and feelings will inevitably diminish.

In order to learn in art and through art, children need challenges that match their developmental abilities — that will capture their interests, curiosities, and imaginations. The dialogues offered in this series are examples of such challenges. Each dialogue was paced to the abilities and interests of particular age groups of children — each was designed to provoke thinking, feeling and senasing. Above all, the dialogues aimed to excite curiosities, focus attention, and help children relate their ideas to the materials and processes of art. The works which resulted from these focused learning challenges, show the power and richness of children's minds at work.

Teachers should also help young art students become aware of what they know and what they can do. General and individual discussions about art work and its creation encourage children to think about and appreciate what they can do so that the knowledge and skills gained in one project can be used again in another.

Let us review the five developmental stages discussed in this series, remembering that the development of any one child may be more gradual than the stages suggest. While it is true that the art work a child makes may be recognizable in terms of one stage or another, some aspects of it may be more typical of the preceding stage or a later stage.

- Children act on materials, transform them and learn basic visual, relational and expressive concepts.
- Children connect ideas about art materials with their ideas of the world by creating organized symbols.
- Children reflect on their experiences to create images of objects and human events.
- Children appraise the world critically. They seek new information by observing, recording and inventing as they create representations of their experience.
- Children become aware of multiple viewpoints and multiple possibilities. Their representations are intimately related to their sense of changing self.

As children become conscious of the power of their minds at work — as the consider the rich and varied possibilities offered them by the media and processes of art — they discover options and choices of how they will use their minds and skills. We know that beyond the years of elementary education, art making presents considerable difficulties to children, yet we lack sufficiently clear and widespread understanding of what these difficulties entail. Once we have a better understanding about continuity in development in the artistic growth of children, we may then be able to help them continue to learn in and through art.

Judith M. Burton is a Teaching Associate in A Education Boston University School of the Arts Boston, Massachusetts

This is the concluding article in a series of six on Developing Minds.

References


