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Exploring Sign Systems Within an Inquiry System

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The students sat quietly, lost in their own thoughts, as the last words of *The Barn* (Avi, 1994) reverberated through the classroom. Gloria had chosen to read aloud this short chapter book to her intermediate multiage students because of their interest in immigration and the topic "Having a Better Life." Their intent faces showed that this story of three children who build their dying father a barn in 1855 had touched them deeply. "Oh, I just *need* to draw," sighed Ramon. Gloria responded, "Do you need time to think through your feelings and connections before we talk?" Students nodded their heads. She suggested that they respond in any way they needed in order to think about the book and reminded them of the many sign system tools available—musical recordings, the keyboard, art materials, journals, masks, puppets, dress-up clothing, and mathematical manipulatives.

The students quickly spread throughout the room. Cynthia wrote in her log about her feelings related to the father's death and the children's loneliness. Camille put on the headphones and composed music on the keyboard to get at the feeling of the cold place where the father was buried. Reuben, Matthew, and Tommy looked through musical recordings and chose a pastoral piece by Beethoven, which they played as they discussed scenes from the book that were important to them. They then moved to pen and ink drawings of the same scenes while the music continued to play. Other children used watercolors, tempera paint, pastels, chalk, charcoal, or pencil sketches to visually portray images from the book that reflected their emotional responses. Ramon experimented with pastels, gradating colors from cool to warm in his picture of a lamp spreading warmth across the dying father. Several children reread the ending of the book, and an-

other small group talked about the father's death and the children's need to create community. The next day, the class gathered for a meeting to talk about their responses to the novel.

Several weeks later, Kathy and Gloria interviewed the children, asking them whether responding first in many different sign systems influenced their thinking. Camille was the first to comment: "I can express my feelings and try out ideas I have in my mind about the book." Adam added, "I can learn more about the book and understand how it felt to live during that time." Michelle commented, "I can make more connections." "Yes," Matthew agreed, "I can experience the emotions of the children in the story." The students felt that trying out ideas in their minds and in the various sign systems helped them understand more about the book and changed how they talked about the book with each other.

These children's responses demonstrate the significance of multiple sign systems within an inquiry curriculum. Our current focus on sign systems and inquiry grew out of our collaboration with students and their *need* to have many ways of thinking and sharing available to them in order to engage more fully in pursuing questions within the classroom that are significant in their own lives. In this chapter, we define what we mean by sign systems and provide an overview of some of our initial efforts to bring a sign system perspective into the classroom. Out of those efforts, we have developed a curricular model that supports our current approach to sign systems within inquiry. This model will be discussed using examples from Gloria's classroom, which we collaboratively collected through fieldnotes, teaching journals, videotaping, audiotaping, student artifacts, and interviews.

THE ROLE OF SIGN SYSTEMS AND TRANSMEDIATION IN LEARNING

Part of being human is our ability to use literacy to think and communicate. Sign systems are all the ways in which humans share and make meaning, including music, art, mathematics, movement, drama, and oral and written language. We use these sign systems to think about and make meaning for ourselves and to communicate with others (Short & Harste, 1996).

While schools have focused almost exclusively on language, we believe that all sign systems are basic processes that should be available to all learners. These sign systems are not special talents possessed by a few gifted people. Although there are differences in abilities in a particular system, all students possess the potential for using these as ways of making and sharing meaning in their daily lives. We do not expect everyone to

become professional writers, but we do expect that our students will use reading and writing as they go about their lives. The other sign systems should have this same availability without the expectation that students will become professional musicians or theoretical mathematicians.

Students' discomfort with some sign systems is the result of a lack of exposure to, and use of, those systems in schools. If our students were immersed in all of these systems in the same ways they are surrounded with language throughout the school day, they would be able to use these systems in more powerful and meaningful ways in their lives.

Not having the potential to use multiple sign systems limits students' understandings of the world and makes learning difficult and incomplete. Elliot Eisner (1994) argues that each sign system makes available different potentials for meaning. If the systems were redundant in their meaning potentials, there would be no reason for all of them to continue to exist. There are parts of the world our students will never know and understandings that they can never communicate to others without the availability of multiple sign systems.

Flexibility in sign system use is important to becoming a successful learner just as flexibility in cueing systems is important to becoming a proficient reader (Harste, 1994). We know that readers need to use flexibly a range of appropriate cueing systems within a reading event. The same is true with sign systems. Within an experience, learners need to use more than one sign system at a time to be effective in their meaning making and to create more complex meanings. They need to choose the sign systems that are most effective for a particular message or to support their understandings about an issue.

Outside of school, students rarely use only language to communicate. They naturally integrate art and movement with language as they tell stories and play. The flexible use of multiple sign systems supports students in bringing their personal and sociocultural strengths as meaning makers into school and gives them access to a wider range of connections from their lives outside of school. Literacy should not be a different event in school than in their lives in the community and in their homes.

Sign systems also form the basis for creative and critical thought processes (Eco, 1976). In the process of taking their ideas public through a sign system, students create new ideas that go beyond their original conceptions. Once these ideas are in a stable public form, they can be revisited, revised, and critiqued through reflection. Viewing an experience from the perspectives of multiple sign systems supports greater complexity of thought and the consideration of new connections and ideas.

One of the ways in which learners can push their understandings and create more complex meanings is through transmediation (Siegel, 1984;

Suhor, 1984). *Transmediation* is the process of taking understandings created in one sign system and moving them into another. Because the meaning potentials in each system differ, this process is not a simple translation of meaning from one system to another. Instead, learners transform their understandings through inventing a connection so that the content of one sign system is mapped onto another's expression plane (Siegel, 1995). Learners search for commonalities in meanings across sign systems, but their search creates anomalies and tension because each system has different meaning potentials and lacks one-to-one correspondence. This tension encourages learners to invent a way to cross the gap as they move to another sign system and, in so doing, to think generatively and reflectively. They create a metaphor that allows them to create new connections, ask their own questions, and open new lines of thinking (Siegel, 1995). Transmediation is thus a generative process in which new meanings are produced and the learner's understandings are enhanced.

For example, Reuben, Matthew, and Tommy transmediated between oral language, music, and art in thinking about *The Barn*. They listened to a piece of music that provided an emotional context to facilitate their talk about death, separation, and fear of the future. However, they could not express all they were feeling through music or language, so they moved to art. They chose pen and ink because it was dark and without color, yet had clean lines, reflecting the tensions they felt.

These understandings about sign systems have led us to extend our definition of *text*. For us, *text* refers to any chunk of meaning that has unity and can be shared with others (Short, 1986; Siegel, 1984). A text, therefore, can be a novel, a picture book, a piece of art, a dance, a song, or a mathematical equation.

INCORPORATING SIGN SYSTEMS INTO THE CLASSROOM

Although these theoretical ideas about sign systems have been discussed for some time, putting them into practice in schools has been difficult because the mandated curriculum and school structures do not support such a perspective. Written language continues to dominate, regardless of the multiple literacies that children bring from their homes and communities. Traditionally, other sign systems are taught as separate subject areas (e.g., art and music) by specialized teachers with no carryover back to the classroom. We wanted to explore approaches that would integrate sign system use into the ongoing daily life of the classroom.

One of our first attempts was to add art, music, movement, mathematics, or drama activities and experience centers to our thematic units. These

activities made the units more interesting and gave us a better sense of possible ways to incorporate sign systems into the ongoing curriculum instead of as separate lessons. However, the activity was usually not a natural part of the meaning making within that unit. Children did not need that sign system for what they were trying to think through or investigate. It was an isolated activity, not a tool to use in other situations. We wanted more—we wanted students to use sign systems for exploring, thinking, and communicating their understandings.

Another approach was to study the sign system as a discipline—for example, a unit on photography or on jazz—so students would know how to use that system. We knew so little about sign systems other than language that we needed to look at one sign system and study it with students. While this approach did help us become more familiar with a particular system, we were engaging in the same behaviors that had created problems with language. We had learned that studying language only in isolation, separate from meaning and inquiry, is not effective. Little of that instruction becomes a natural part of how children make meaning and view the world. If learning about language makes sense only when students are engaged in using language for meaningful purposes, then the same is true for other systems.

Still another approach was to encourage greater use of sign systems as students presented their understandings from inquiry projects and literature circles to the class (Kauffman & Yoder, 1990). Instead of assuming that students would write a report or give an oral presentation, we asked them to first think about the ideas that were most significant to their work and then brainstorm ways to share those ideas with others. Their presentations became thoughtful and creative, and their discussions as they prepared their presentations were often characterized by critical dialogue. However, we realized that using sign systems only to present was the same as using writing only to publish. We wanted students to use sign systems as ways to think and explore, not just to share and present to others. Students needed to have multiple sign systems available to them throughout their inquiries, not just at the end of a particular inquiry study.

We also tried bringing experts from these sign systems into the classroom through various artists-in-residence programs. This approach was particularly helpful for those sign systems where we did not know enough about the discipline to figure out how to integrate that system into the classroom. We needed to draw on others' expertise so that children would have demonstrations available from a wider range of systems. The particular programs that came into the school, however, were designed so that the

artists taught predetermined lessons. A visual artist, for example, taught children how to make masks. Although the lesson was well presented and children enjoyed making masks, the lesson was separate from their inquiry and did not support their questions. It remained an isolated activity that did not become part of their thinking. The experts tended to teach *about* their sign system rather than actually engaging in the system so children could see them at work. Their focus was on the knowledge of professionals rather than on ways that children could use this system as part of their daily lives. We believe in the potential of artists-in-residence programs, but only when connected to children's inquiry.

In an effort to get away from formal lessons about sign systems, we decided to make the tools of the systems available and give students time to play with these tools. We put out different art materials, math manipulatives, musical recordings, writing utensils and paper, books, musical instruments, puppets, dress-up clothing, and scarves and gave students a studio time when they could use these materials without having to produce a product. Students approached these materials timidly at first but gradually became involved in exploring a wider range of sign systems. While we were pleased with their increased risk taking, we had several concerns. One was that students' play often seemed purposeless. They did not connect their play with sign systems to either personal or class inquiries—it was just a time to "mess around." We knew from research with young children that children use play for purposes that are significant to their thinking about their lives (Rowe, 1998), but these students did not seem to engage in this kind of purposeful play and exploration in the classroom. The heart of the issue appeared to be that they did not know *why* they were being given time to play with these sign systems since the play was not connected to the curriculum or their lives. We also saw many points at which students needed to know more about how the sign system operated. They needed strategy lessons about incorporating dialogue into their dramas or about the technical uses of watercolor. Their play took them only so far and they needed support to more effectively use these sign systems for meaning making.

Each of these approaches offered potential as well as limitations. Although each reflected simplistic answers to a complex issue, nevertheless, each approach gave us a sense of important aspects to incorporate into a curricular framework that would reflect the complexities of sign systems and the roles they play in daily life. Because we were also involved in exploring inquiry-based curriculum, we planned to look at sign systems within an inquiry framework (Short, Schroeder, Laird, Kauffman, Ferguson, & Crawford, 1996).

DEVELOPING A CURRICULAR MODEL OF SIGN SYSTEMS

The field of education has made a major shift from isolated skills and grammar lessons to reading and writing as inquiry (Short & Harste, 1996). We believe that this same shift is possible with sign systems. One of the theorists who influenced our thinking about language was Michael Halliday (1985) who said that in any meaningful language event, learners have the opportunity to learn language, learn about language, and learn through language. Learning language highlights the "doing"-learning by actually engaging in talking, listening, writing, or reading. Learning about language highlights the opportunity to examine language itself and how it operates. Learning through language focuses on using language to learn about the world. These three opportunities are available only within contexts that are meaningful to learners, contexts where they are inquiring into questions significant to their lives.

Initially, we used Halliday's work to examine whether students had language engagements available in the curriculum that highlighted all three aspects—for example, wide independent reading where readers could focus on learning language, literature circles where they could focus on learning through language, and reading strategy lessons where they could focus on learning about language. We found that, while the potential for all three are available in every engagement, each engagement highlighted a particular aspect. For example, when we first began literature circles, we had one discussion group after another without giving time for students to read for enjoyment. Halliday's work helped us search for a dynamic, complex curriculum that cuts across all three aspects instead of engaging in pendulum swings where one aspect is emphasized at the expense of the others.

We decided to take Halliday's theories about language along with our understandings of the significant curricular engagements that support reading and writing in classrooms and use these as the basis for a curricular model of sign systems. In making this connection, we assumed that the other sign systems operate in similar ways as reading and writing, that there is a universal process of meaning making that underlies all of the sign systems. We realized that at some point we might have to reject this assumption, but the only way we could move ahead was to use what we knew about language processes and engagements.

To demonstrate how we use this curricular model in the classroom, we will describe a particular classroom inquiry study. We will then discuss each part of that inquiry to show how the different aspects of the curriculum interrelate and support students in their explorations. The particular classroom experience described in this section occurred in Gloria's primary multiage classroom (ages 6-9). The third-grade students from this classroom then

moved on with Gloria the following year to become part of the intermediate multiage classroom (ages 9-11) with which we began this article. The classroom is located at Maldonado Elementary School in the southwestern part of Tucson and serves a diverse working-class community.

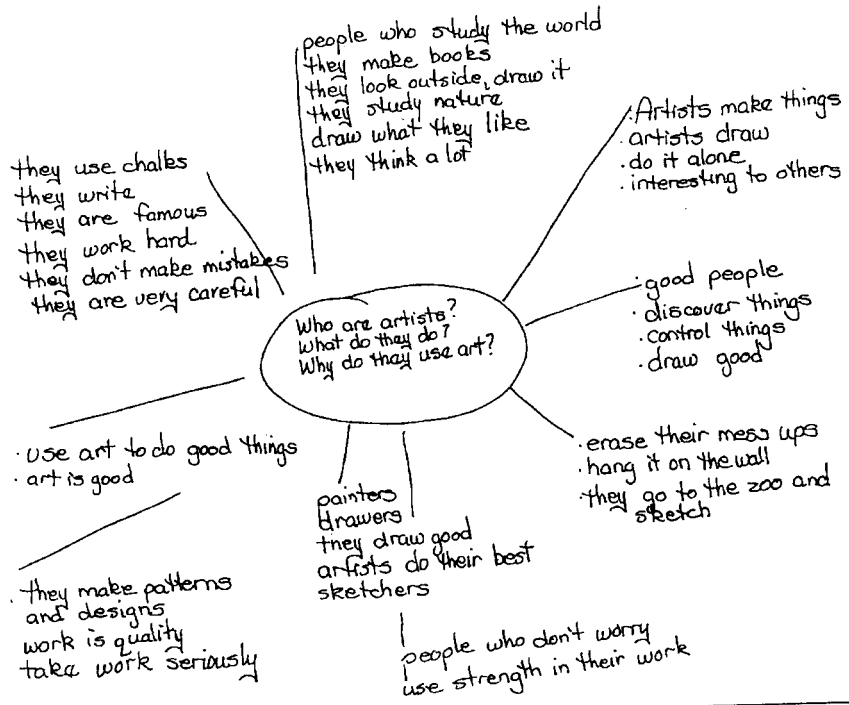
A Class Inquiry on the Influence of People on Nature

The primary multiage class began the year by exploring the broad concept of a sense of place. Through various engagements, literature circles, and class discussions, we noticed that the students were asking many questions about how people's actions influence nature, specifically the desert. We planned a number of open-ended engagements so they could explore these interests. Students shared their personal connections and stories of the desert and nature. They browsed a wide range of informational and fiction picture books, examined exploration centers with nature artifacts, and went on desert walks. Children took notes constantly in their literature logs and sketch journals and shared these with each other. They also met in small groups to organize a *web* illustrating what they knew about nature and added their understandings and emerging questions to these webs throughout their experiences.

Through class discussions and written reflections, students indicated a strong interest in patterns in nature and how to live in harmony with nature. Students were particularly intrigued with the picture books and art pieces and wanted to know more about how artists portray nature and the environment. Gloria realized that she needed to understand what they already knew about art and artists in order to support and extend their inquiry. She asked students to meet in small groups to discuss and to web their thoughts (meaning visually display the relationships among their ideas) in response to these questions: "What is art? Who are artists and what do they do? What tools do they use?" (see Figure 3.1). The class also met for large group discussions where Gloria showed a painting and children talked about their understandings of art elements and how these elements are used to create meaning about nature. From these experiences, Gloria gained a better sense of children's understandings and questions about nature and art in order to negotiate the class focus with them.

Children's interest in artists' portrayals of the environment led to literature circles where each group examined and discussed picture books by illustrators who highlight nature in their illustrations, such as Thomas Locker, Peter Parnall, Ed Young, Jeanie Baker, and Lynne Cherry. As students explored their text sets, they recorded their observations in sketch books, literature logs, and graffiti boards. These recording devices supported literature circles on their set of books where they discussed the ways each illustrator used art to convey particular meanings about nature.

FIGURE 3.1. Class Brainstorming Web on Art and Artists



Because of students' questions about how illustrators use particular media, Gloria set up studio experiences where children could play with the media used by those illustrators, such as watercolor, charcoal, pastels, collage, and pen and ink. Students were concerned about technique so Gloria taught several whole-class strategy lessons on contour drawing, line and shape, and revision of art pieces. After the students concluded their illustrator studies and presented them to the class, they met to brainstorm possible new directions for a class focus and decided to move into inquiries around conservation issues.

A Curriculum to Learn, Learn About, and Learn Through Multiple Sign Systems

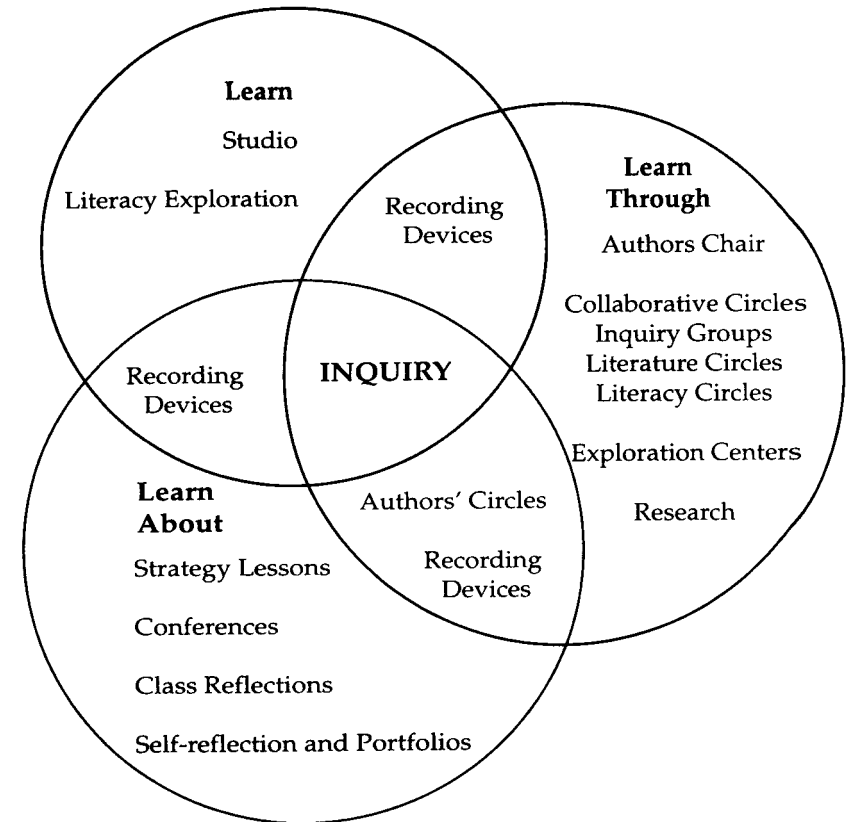
This class inquiry around the environment and its portrayal in art effectively integrated multiple sign systems. As the class moved to other inquiries, they continued to weave art throughout all of their work. In order to understand why this experience was so generative for them, we returned

to Halliday's work to examine the different engagements that were part of this inquiry. His focus on the opportunities for learning available within any meaningful event helped us develop a curricular model for our work (see Figure 3.2).

Engagements That Highlight the Opportunity to Learn

One opportunity for students within meaningful literacy events is to learn sign systems through the process of engaging in the *doing* of that system. Through this doing, children can explore issues related to the class focus, their personal interests, or a particular sign system. The engagements in this circle, such as Studio and Literacy Explorations, are an open choice time for purposeful play.

FIGURE 3.2. Sign Systems within an Inquiry Curriculum



In language, wide uninterrupted reading (Sustained Silent Reading) involves scheduling a time when students can choose books to read for enjoyment without having to write book reports or engage in research. We decided to expand this wide reading time to involve students in "reading" texts from many sign systems—reading a book, listening to music, viewing an art piece, or watching a video of a dance or drama. Students could choose which of these texts they wanted to explore during literacy explorations. During the nature focus, children could listen to musical recordings, spend time with still life displays of nature and desert artifacts, examine art pieces and prints, and read books about artists and nature. Sketch journals played an important role in connecting these experiences because they were the recording device that children kept with them at all times.

Through our experiences with language, we knew that writing workshop supports students in using writing to think as well as to communicate. We decided to explore a studio time where students could compose meaning in a range of sign systems. During the nature focus, the studio included opportunities to use a variety of art materials as music played in the background. The books, displays, art pieces, and so forth were available to them as resources. Children used their sketch journals to prepare for what they wanted to explore during the studio time. Some children explored personal issues, others explored issues of nature, and others played with elements of art.

This art studio later evolved into a Friday morning studio time. Rather than schedule a short studio time on a daily basis, Gloria schedules studio for the entire morning one day a week. Children know they will have a large chunk of time for exploring and creating. During studio, children can use any sign system to create meaning. Areas with tools for the different sign systems have been established—a keyboard with earphones, listening centers with musical recordings, mathematical blocks and geoboards, books, writing paper and utensils, art materials and paper, and dress-up clothing and puppets. On Thursday afternoons, students create a plan for how they will schedule their time the next day, listing what they plan to do and why (see Figure 3.3). They begin Friday morning with a class meeting to talk about their goals for studio and then move to the different areas of the classroom. At various points throughout the morning, children share what they are working on with each other in small groups and the morning ends with whole group sharing. They also write a reflection on what they did and what they learned. Some children have established long-term projects in a particular sign system that they work on every Friday morning while others move across sign systems to explore different possibili-

FIGURE 3.3. Studio Planning Sheet (Alyssa, Age 9)

Studio time plan:

1. First I am going to do clay with Melissa P & Melissa F. We are going to make jullrey. From 9:00 to 10:00 we are going to work on jullrey. From 10:00 to 11:00 I am going to make a home for the toads. I am going to need a big tank and some other stuff to make them a bigger home.
3. From 11:00 to 10:00 I am going to read. I need some books I am going to read because I want to get better at reading.

ties. The sign system tools are a permanent part of the classroom environment so students continue to use these tools throughout the week as they work and think together.

Engagements That Highlight the Opportunity to Learn Through

Another opportunity for students within meaningful literacy events is to learn about the world and themselves *through* sign systems. Their focus is on what they are learning, not on the sign system itself. Through engagements such as Authors Chair, Collaborative Circles, Exploration Centers, and Research, students are able to use multiple sign systems to explore and learn about topics and issues that are significant to them.

Authors chair has typically been a place to read aloud to the class from powerful picture books and chapter books in order to build a shared context for the class focus (Short & Harste, 1996). Following the reading aloud, the class talks together about their connections and understandings of that book. For example, Gloria read aloud *The Monument* (Paulson, 1991) because it brought together the art and nature focus that was so significant to children's questions.

Within this model, we expanded authors chair to include texts from a range of sign systems. For example, during the nature focus, a piece of art was often the text shared with the class. The class carefully observed the piece and then offered insights and connections. At other times, the text shared was a piece of music, a graph or model, or a short dance or drama video. As with read-aloud experiences involving books, the text was followed by short class discussions of student connections and questions.

Literature circles, small groups where students read and discuss the same book or a text set of conceptually related books, involve students in conversation and dialogue and encourage them to use literature to make sense of their world and lives (Short, 1997). In the nature focus, students signed up for literature circles on different illustrators of nature books. The picture books in their text sets combined the sign systems of art and language.

One way to expand literature circles is to think about text sets more broadly. For example, when students later explored storytelling across different world cultures, their text sets included a dance video as well as folklore and art prints. In addition, students met in literacy circles to discuss texts from a range of sign systems. Just as students in the past formed groups for in-depth discussions of books, now they gather for a Literacy Circle on a particular painting, sculpture, piece of music, dance, or drama.

As students move into a new inquiry focus, we often use exploration centers so they can connect with what they already know about the topic and begin to make new connections and to generate questions for focused inquiry. In the nature focus, these exploration centers included picture books, poetry, informational books, art prints, musical recordings, tapes of sounds from particular environments, and artifacts, such as bird nests, bones, cactus skeletons, cocoons, and wasp nests. As they explored these centers, students sketched, webbed, and wrote notes about their observations and questions.

Once students find questions for in-depth inquiry, they investigate those questions consulting different resources and recording their research notes with various tools. In the nature focus, they examined the illustrator text sets as part of their inquiry groups. While these groups primarily used picture books and magazine articles about authors, at other times inquiry groups draw upon a wider range of resources for their research. For example, later in the year students engaged in inquiries around consumer issues where they used magazine ads, catalogs, coupons, play money, calculators, computers, and literature. In both sets of inquiries, students recorded their research with a wide range of tools including sketches, webs, graphs, surveys, interviews, written notes, and time lines.

As students finish their inquiries, they present them to the class through multiple sign systems. Portfolios and an art exhibit were the presentations that the class decided they would use to pull together their nature and art inquiries. In other cases, each group makes differing decisions about the presentations. When the intermediate students engaged in mini-inquiries around the topic of learning, the toad group put on a drama about toads eating flies from the fly's perspective, the teenager group created posters and a newspaper about the reasons teenagers use drugs, the mixing color group put together a recipe book of original colors they had created, the Anne Frank group wrote a newspaper on the hardships of living in a concentration camp, and the Mexican culture group made a museum of artifacts on Mexican fiestas. Each group discussed what they wanted others to know about their inquiry and then chose a form of presentation that would communicate their content.

Engagements That Highlight the Opportunity to Learn About

A third opportunity for students within meaningful literacy events is to learn *about* the sign systems and how they operate in meaning making. Learning about sign systems often occurs through short, focused strategy lessons designed to push students' thinking and use of a particular system. Conferences provide time for peers and adults to interact and bounce ideas off each other. Reflection time allows the class to come together to share their choices, processes, and understandings.

A number of strategy lessons were taught as needs arose during the nature focus. When children asked for a strategy lesson on how to use chalk for better blending and shading techniques, Gloria set up an experience where she encouraged everyone to find many ways of using chalk. As students discovered ways to smear, blend, create texture, mix colors, add shadows, or create tension, they shared these concepts with the rest of the class. Students later requested experiences with using line and shape. In addition, Gloria initiated a lesson on contour drawing after students expressed their disappointment that their drawings did not match the images in their heads.

During studio time, Gloria often *conferenced* with students and suggested new techniques, besides the use of brushes, that they might use in their painting. These techniques included sponges, straws, string, and a toothbrush. Children's interest in these alternative techniques led them to discover other possibilities that they then shared with others. Melissa figured out how to use cotton swabs to make leaves and twigs. She recorded her strategy in her sketch journal and *conferenced* with other children to show them how they might use this technique.

Authors' circles encourage students to learn about various sign systems as well as to learn through these systems. Authors bring rough drafts of texts they have created to these circles for the purpose of thinking more about those drafts with other authors. The discussions push authors to think about their meaning as well as how they used literacy to create that meaning. These authors' circles are particularly significant to students when they are preparing presentations for an audience. Educators have typically thought about these circles as places where students take written pieces, but students can bring any text they have created for response and critique—an art piece, charts, graphs, dance, drama, music, and so forth.

To highlight revision during composing, Gloria used an experience developed by Molly Bang (1991) during the nature focus. This strategy lesson involved students working as partners with black, white, red, and purple paper to create a scary picture showing tension and fear. Students were given scissors, but no glue. Once students had created their pictures, they were placed on the floor and the class gathered around the pictures and talked about which ones were the scariest and what elements made them seem scary. They were encouraged to think about how their pictures could be made scarier and tested out their ideas by moving parts of the pictures around. Students then took their pictures to their desks, revised them, and returned them to the floor to discuss the revisions and ways to make them even scarier. After this second discussion, students again revised their pictures and then glued on the pieces and displayed them in the classroom. This strategy lesson helped give students a sense of how to use authors' circles with texts other than writing.

Before, during, and after the nature study, students reflected on what they were learning and how they were going about their learning through class meetings and individual reflection journals. The class met for daily oral reflections at the end of the inquiry group time so that they could discuss how their inquiries were proceeding. Students shared the strategies and tools they were using and brainstormed ways to solve problems. Each morning as students entered the classroom, they took out their reflection journals and wrote and sketched connections they were making in their learning at school and at home.

After students had presented their inquiries to each other, the class met for several discussions on what they had learned about nature and art through their inquiries. They also reflected on what they had learned about inquiry processes. They especially focused on the processes and tools that they might use in later learning experiences. They further extended their thinking by pulling together portfolios on themselves as learners. Students looked through their various journals and artifacts to choose the ones they

thought reflected the variety of their inquiry explorations as well as the depth of their thinking.

THE COMPLEXITY OF A SIGN SYSTEM CURRICULUM

Through developing this curricular model, we gained a stronger sense of the key issues that need to be addressed if sign systems are to be integrated into classrooms in powerful ways. First, and of foremost importance, the primary focus in the classroom should be on personal and class inquiries. We do not start out by thinking about how to bring a particular sign system into the classroom. We look at the questions that are significant to our students and think about how children can further their inquiry through a wider range of sign systems. This negotiation of topics does create tensions because of district expectations, mandated content, and time restraints. The mandated topics are not ignored but are often approached through children's questions or a short unit focus. These strategies provide the time needed for a negotiated curriculum around topics and issues from children's own lives.

In thinking about possible curricular engagements that highlight different sign systems, we also realized the need for balance across many dimensions. One of these dimensions is that *sign systems are tools for thinking and for communicating*. This double focus highlights sign systems as tools for personal exploration and the creation of ideas as well as for public presentations of ideas. Lucy Calkins (1991) points out that many classrooms overemphasize writing for publication and give children the sense that writing involves a step-by-step sequence of getting an idea, writing a draft, revising it, and publishing. Professional authors, however, often spend long periods of time jotting down observations, quotes, and ideas, which may or may not lead eventually to an initial draft. Calkins urges educators to provide more opportunities for students to use writing as a way to think. We believe that sign systems also have been too frequently viewed as a way to present ideas rather than to generate ideas.

A second dimension is that *sign systems are constructive processes of meaning making that involve both interpreting and composing*. We know that students learn about writing through reading and reading through writing. However, many times we highlight composing and neglect interpreting with other sign systems. For example, students are often asked to sketch and draw, but have few pieces of art available in the classroom. They need to view art as demonstrations to push their own composing, just as writers need to read other authors. On the other hand, students who are asked

to listen to music and interpret it also need to have opportunities to play with composing their own music.

The final dimension is *that curricular engagements need to continuously move between learning, learning about, and learning through*. Although we described each circle separately in our examples, within any particular classroom inquiry focus there is a complex interaction between the circles. In the nature focus, art and language were the sign systems that were highlighted. Students interpreted art and language through viewing nature, books, and art prints. They constantly composed through sketch journals, literature logs, and webs. While students did not work directly on their inquiry projects during studio time, their play with art was purposeful because of questions they were raising during their nature inquiries. They came to studio ready to play with art as a system because they needed it for their inquiry into illustrators and nature.

Throughout all of their engagements, students recorded thoughts, images, and ideas in their sketch journals. They used these journals to record observations during outdoor field studies and as they engaged in their illustrator studies. They also carried their sketch journals to studio as a resource and point of reference. Students used their understandings from their illustrator studies and nature studies to explore new connections during studio. They could also record new understandings they were gaining from studio. Through studio and the illustrator text sets, students asked for strategy lessons on art as a sign system. These lessons were not taught in isolation, but were significant to students as they continued in their studio and literacy circle engagements.

This curricular framework recognizes the complexity of the ways in which teachers and students think about an inquiry curriculum. Curriculum cannot be reduced to simple formulas. Teachers need structures that support children in pursuing their own inquiries and that facilitate curriculum negotiation with students. Curriculum is a collaborative process, not a free-for-all where the teacher stands back so as not to impose onto children nor an autocracy where everything is determined in advance by the teacher. The particular engagements found within these circles will vary, of course, based on the inquiry focus and the children's interests and needs. The engagements we listed in the model are not a complete list, but simply the ones we used within this particular experience. Curriculum is always a generative process as students and teachers think together and negotiate engagements that meet their needs and inquiries.

This framework provides a flexible structure that is supportive in our thinking and planning in the classroom. However, we do recognize that it is based on the assumption that there are universal processes of meaning making that underlie all sign systems.

CHILDREN'S REFLECTIONS ON A SIGN SYSTEM CURRICULUM

Because we believe that curriculum is a negotiated process, we shared this sign system framework with the intermediate multiage students. We wanted to know whether the framework made sense to them. We explained the framework and talked about how we were using it to understand what was happening in the classroom.

We first asked students to reflect on their experiences and talk about why and how engaging in "doing" with different sign systems was important for them as learners. Tommy said, "I can do things I thought I could never do." "I can learn things I am interested in," added Michael. "I can learn to do something I've never done before by deciding what would be best for my idea," said Michelle. Melinda agreed, "It is important to express your work and share your feelings."

Second, we asked students why and how they used sign systems to learn about various topics. Adam said, "I learn to listen to others and get new ideas so I can make whatever I am doing better." Ramon noted that he collects ideas, and then "I discuss my ideas I've worked hard on." Cynthia described how ideas and books connected to her, and Juliette added how important it is "to build ideas off of others and what they say."

Finally, we talked about whether students found learning about particular sign systems helpful. Melissa believed that reflections are "a way to look over your life and get new ideas." Camille stated, "You need to know strategies to help yourself solve problems in life and work." Reuben added, "We need strategies so people can help you and you can help them." Michelle agreed, "We can learn how others work. And if you don't know what you think, a discussion helps you get further than when you are alone." These children's reflections make evident the ways in which a sign system perspective values their diverse ways of knowing and increases their ability to make sense of their lives and world.

IF SCHOOLS/SOCIETY SHARED OUR PERSPECTIVE ON LITERACY, HOW MIGHT PEOPLE'S LIVES BE DIFFERENT?

The children's reflections probably give the best indication of how people's lives would be different if schools and society shared our perspective on sign systems. Schools would reflect the diversity of the lives that children bring to the classroom, especially their personal and cultural ways of knowing and

thinking about the world. The current **verbocentric** nature of schools would be challenged along with its labeling of children who need a range of sign systems, not just language, to think and communicate.

By having the opportunity to use multiple sign systems to learn, children would be able to find and share the connections that are important in their lives. Through these connections, they could then critically examine the big issues that they face as people and as learners. They would no longer be restricted to one form of thinking and communicating, but could choose multiple systems that fit their own ways of learning as well as the specific contexts and topics they are exploring.

These choices would give them more flexibility and success as learners and allow them to build more complex understandings because of the availability of meanings from a range of systems. Since each sign system supports a different way of knowing, the use of multiple systems would open up more perspectives on any given topic and give a wider range of ways of thinking about their lives and the world.

Our view of curriculum would challenge the isolated teaching of skills and procedures of any sign system: Learning about the nature and function of a sign system would have to be integrated into actual engagements with that system as students inquired about questions of significance in their lives. The focus of schools would change. The artificial separation between school work and life work would no longer exist because the learning in which children engaged in schools would be part of their ways of thinking and living in the world. Schools would be places where children would connect to and critically examine their lives and come to consider new possibilities for themselves and others.

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What Counts as Literacy

Challenging the School Standard

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