seeing children's lively minds at work

by Deb Curtis

We overestimate children academically and underestimate them intellectually.
— Lilian Katz

One of my worries about the growing focus on academics and school readiness in programs for young children is it keeps many teachers from seeing children's innate, lively minds at work. When teachers are overly concerned about teaching the alphabet and other isolated skills and facts, they may miss children's serious approaches to tasks and voracious quests to understand the world around them. As Lilian Katz's quote above suggests, children are more apt to be interested in intellectual pursuits than academic lessons. I think clarifying the difference between the two can help teachers see and appreciate children's thinking, and in turn offer meaningful experiences that engage their lively minds.

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Webster's dictionary defines academic as "very learned but inexperienced in practical matters," "conforming to the tradition or rules of a school," and "a body of established opinion widely accepted as authoritative in a particular field." And intellectual is defined as "given to study, reflection, and speculation," and "engaged activity requiring the creative use of the intellect." Obviously it is important for children to learn appropriate academic skills and tasks, but rather than overly focusing on these goals, I strongly claim and enjoy my responsibility to help children become engaged thinkers, excited about the wonders around them. Young children bring an eager disposition to learn all of the time, so it's my job to find ways to really see, appreciate, and further their intellectual pursuits.

Take children's actions seriously

It's easy to dismiss children's explorations because they move quickly, make messes, and put themselves in seemingly risky situations. I have developed the practice of waiting before jumping into a situation to determine what the thinking might be underneath a child's behavior. I have come to see that with most everything children do they have something in mind; a purpose or question they are pursuing. When I take even their smallest actions seriously, I am astonished at children's deep engagement with the simple wonders around them; I notice they are studying and speculating, engrossed in the moment. Notice nine-month-old Maddie's lively mind at work in the following photos and story.

Sounds and sparkles

Maddie was captivated with the shiny, crinkly paper that she found in a basket. She grabbed the paper and began to shake it with excitement as it made a loud, crackling noise. Then she pinched it with her fingers and explored it with her mouth. She quickly began to shake the paper again. I was curious as she put the paper up to her eyes and then went back to shaking it. Was she noticing the light reflecting off the surface of the paper? Did she see the transparency of the paper?

Maddie's joy in her investigation was obvious as she smiled and laughed with me as she tried each new action. Her favorite activity was shaking the

paper. I think she loved the sound she was able to produce and my reaction to her, and she may have been delighting in the sparkles she could see coming from the paper as it moved. Next, Maddie clasped the paper with both her hands and began to stretch and pull it, watching the paper intently as she did this. I wondered if she had discovered something about the paper when she was shaking it and was exploring it further with this new action. What noise will it make if I pull it? Does it still sparkle when I stretch it this way? I loved seeing the paper from her point of view and watching her joy and intense engagement with the magic of this unusual material.

Use a *Thinking Lens*

I use questions from a *Thinking Lens* that I developed with Margie Carter to help me to remember to slow down, look for the details of what is unfolding, suspend my teacher agenda, and try to see children's perspectives. This one-page chart was part of a Beginnings Workshop article I wrote for the November/December 2008 issue of *Exchange*. The chart can be downloaded from www.ChildCareExchange.com/free. As I participate with children in these daily quests for understanding, I document what I am seeing to tell the stories of their rich intellectual pursuits. I study my photos and notes carefully to capture the significance of the children's work. These stories show how children bring their whole selves — body, mind, and emotions — to every task. Notice the details and children's perspectives in the following photos and stories.

Immersed in bubbles

Two-year-old Mackenzie was totally absorbed in an intense study of bubbles today. I watched her purposefully fill a small cup and then pour the sudsy, wet substance onto her hand. She studied her wet and soapy hand for a long while and then poured some more water and bubbles on her hand again. I was surprised when, after investigating the bubbles this way for several minutes, Mackenzie leaned over and totally immersed her arms into the water, stretching her hands and fingers under the surface and again looking closely at the bubbles on her skin. She spent about 30 minutes playing in the water tub this way.

I delighted in Mackenzie's rapt attention for this investigation. It was such a simple set of materials, but she found so much to investigate. Seeing Mackenzie's lively mind at work certainly counters the idea that two year olds don't have a very long attention span. I wonder what she was noticing as she gazed at the bubbles. Did she feel tiny sensations of bubbles popping on her skin and then try to see what she was feeling? Was she noticing light and color shining through the bubbles? Was she interested in the textures, sheen, and shapes of her hands and arms in the water? Whatever was on her mind, the intention and focus she brought to this work was obviously a serious intellectual pursuit.

Offer more to see more

When I've seen children exploring objects and materials with such concentration, I want to offer them expanded possibilities with similar experiences to deepen their investigations. I also want the opportunity myself to see more of what is on their minds and their growing understandings. Seeing toddlers' fascination with this magical substance called water, I decided to offer more ways for the group to continue with this intellectual pursuit.

The magic of a sponge

To build on the children's investigation of water, I offered them dry sponges at the water table. My hunch about their interest in this new material with the water was right on. The children approached the hard, dry sponges with great curiosity and intense exploration began. I loved the serious looks on their faces as they examined the sponges closely while they were still dry, and then quickly put them in the water. They manipulated the sponges, intently watching as the sponges absorbed the water. The children discovered and then delighted in squeezing the water out of the sponges. They repeated the soaking and squeezing actions over and over again. Next, they became interested in filling the containers in the tub with water

and the sponges. Oscar was determined to put every sponge in the water into the container. Then he covered the sponges with water and watched the water and sponges spill over the top. He repeated this several times. I think these experiences related to physics concepts, such as float and sink, absorption and displacement. I am excited to learn more about the specifics of this learning domain, so I can offer the children more possibilities.

The children easily discovered how their actions had an impact on the sponges and the water. They eagerly learned from the materials, their own actions, and from watching each other. I was

amazed at the children's attention and ability to take in so much information so quickly. They were just like the sponges, soaking everything up. And seeing the world through their eyes, I gained a new appreciation of just how amazing sponges can be!

Seek multiple perspectives

My interest in children's lively minds and intellectual pursuits led me to the book *What is a Scientist?* by Barbara

Lehn (1999). It portrays the elements of inquiry for young children that are identified by the National Science Foundation. One of the elements of our *Thinking Lens* suggests considering multiple perspectives to describe and understand the many ways I observe children naturally using these elements of inquiry in their explorations. This book helped me to see the children's actions more complexly as I adapted the elements from it to use in analyzing and planning from my observations. Re-reading the observation stories above, can you see that even very young children are thinking and learning like scientists from the following list?

When young children think and learn like scientists they . . .

- Wonder and ask question.
- Learn through their senses.
- Observe closely and notice details.
- Describe, draw, and write what they see and think.
- Compare and sort by looking carefully.
- Count and measure to make comparisons.
- Experiment through trial and error and test predictions.
- Keep trying over and over.
- Work together with others and have fun!

These outcomes are also helpful when responding to concerns from parents and other professionals about what children are learning as they play. In the following story of four-year-old Joshua playing with colorful, translucent blocks you can see the lively mind of a scientist at work. Which of the science outcomes is he working on in his play?

Thinking and learning like a scientist

One of Joshua's favorite places to work in the room is the Light and Color Table. Today he spent more than 35 minutes building, stacking, and knocking over the colorful, transparent blocks. He thoughtfully examined each piece before he added it to the line of blocks that he was creating. He lined each one, end to end in a row and then using his finger, he carefully knocked the blocks down one by one without disrupting the other blocks in the line. I was amazed at this difficult task he set for himself because it required much concentration and a steady hand.

It surprised me that Joshua didn't seem to be paying attention to the color or mirrored reflection, but instead to the size of the blocks. He put 2 long ones together and then 2 short ones, making this pattern each time. He chose the

PHOTOGRAPH BY THE AUTHOR

blocks carefully, putting the ones aside that did not fit his pattern.

He showed such diligence for this pursuit, because when he had mastered his goal with the blocks lined vertically, he switched to building horizontally across the mirror, and carefully knocked them down. I marveled at Joshua's attention for the physics of spatial relationships, gravity and motion, and the math skills he practiced while comparing and patterning with the blocks. It's remarkable how children discover and study these things for themselves in a richly provisioned environment, for we could never teach them all there is to know about these wonders in the world.

Engage with children in intellectual pursuits

My work with children, even the youngest babies, is the most intellectually stimulating part of my life. As you read the observation stories here, along with descriptive details and the children's perspectives, you will notice that I make reference to my own interests, curiosities, surprises, and delights in what I am seeing. I offer my thoughts by making meaning using the details from what is unfolding, rather than just quick judgments or opinions. I work purposefully to find the moments that capture my heart and mind because I know my interests are what I give attention to and, in turn, communicate to the children who they are in our group. When teachers are intellectually engaged, side by side with the children in their pursuits, we see more clearly their lively minds at work, and respond in ways that enhance their identity as serious thinkers and learners. The following story is one of my favorites from my work with preschool children, as their joy and wonder about the magic of rainbows matched mine.

Catching rainbows

In our room we have wonderful windows where on sunny mornings the light comes streaming in. Because our program is located in the often grey and rainy northwest of the United States, the sun is a welcomed friend. To celebrate the sunlight, we created a display in a window with prisms, mirrored balls, and hologram mobiles for the children to explore. The children eagerly gravitate toward the spinning lights and rainbows made by these items. They try out all kinds of actions on them to see what will happen.

The children think and care deeply about the magical colors and lights that visit our room. They are intensely curious and have formulated serious theories and questions about where the rainbows come from and why they visit us. As they play with the light and rainbows through chase games and cause and effect explorations they are careful observers of important details. They clearly notice what is different on the rainbow days. A few have made the connection that when the sun is not out, the rainbows are gone. I delight in the theories the children share as together we seek deeper understandings of these amazing phenomena.

"The rainbow makes all of the colors in our room."

"The rainbow comes from the clouds."

"When it rains, the rain goes right through the rainbow."

"Rainbows are colorful air."

"The rainbow comes to visit because it likes us.

The children's theories show what powerful observers they are of the scientific evidence at hand and also offer delightful interpretations from their unique perspectives. I don't interrupt these spontaneous musings for preplanned academic activities. Nor have I researched an academic lesson about how rainbows are made. I know that imbedded in their exuberant explorations are rich opportunities for collaborating, problem solving, hypothesizing, thinking, and learning. I don't want to limit the children's complex intellectual pursuits by focusing on teaching them the 'right' answer.

My priority is that the children's learning includes amazement, joy, magic, and wonder, rather than activities with no context and dry facts without meaning. I want them to 'play' with their ideas about rainbows in their conversations and through meaningful activities. When the rainbows come I delight with them as they run and jump and chase them around the room. I suggest that the children think and learn like scientists by talking about and drawing their ideas and theories. and then I turn these into displays or books with photos and stories so the children and I can revisit their thinking to go deeper. After extensive exploration and study of their own theories, I offer books with the scientific

facts to enhance their discoveries. These are ways children experience meaningful academic learning.

I find that it takes daily practice for me to really see children. But I know that when I closely observe children's pursuits and take their ideas seriously, I see their lively minds at work and how capable they truly are. When I join the children in their excitement about the world, I enrich my own life and work. Ultimately, when children are supported to pursue their interests and passions, they come to believe that their theories and intellectual pursuits have value. They experience themselves as competent thinkers and learners who can make choices about their learning. They learn to collaborate and see other perspectives and work through disagreements. They study something over time and in-depth to learn about it — in other words, they are intellectuals at work!

Reference

Lehn, B. (1999). *What is a scientist?* Minneapolis: Millbrook Press.