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Josef Guptill, age 1.5, 2000

The Scribble Hypothesis: Invisible Brain Building
by Dr. Susan Rich Sheridan



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Susan Sheridan, age 29, and Jessica, age 2, painting in garage at Dover, MA, 1972

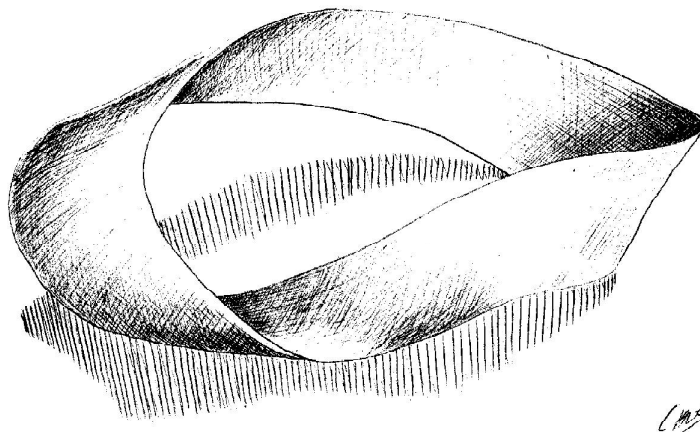
“Only one thing is certain - that written language of children develops in this fashion, shifting from drawings of things to drawings of words. The entire secret of teaching written language is to prepare and organize this natural transition appropriately...Make believe play, drawing and writing can be viewed as different moments in an essentially unified program of development of written language.”
--Lev Vygotsky, “The Prehistory of Writing,” an essay, c. 1930 in *The Mind in Society*, 1978.

No one taught you how to rock your baby and no one taught your child to scribble. Both behaviors are instinctive and important and essentially the same.

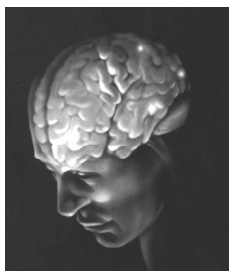
Rocking causes liquid in the middle ear of the baby to move back and forth, organizing the inner ear for sound, including a range of frequencies. Rocking also helps organize your infant’s GPS, or global positioning system so your baby will be able to locate its body in space. Rocking also teaches your babies that you love them, want to hold them, and are responsive to their needs. Scribbling tunes the child’s brain for higher frequencies, too: *literate* frequencies.

Sound and light have wavelengths. These wavelengths have certain frequencies, or rates of oscillation. The waves are a certain height and they move at a certain speed like wires between telephone poles vibrating in the wind. Mother/child interaction has been measured in terms of oscillation rates or frequencies, too. So have brain waves. The marks humans make affect brain frequencies. We call these brain patterns symbolic thought. Symbolic thought is more than reading and writing words. It’s a range of literacies, and their neurological function is a comforting rhythm, a reciprocal interaction, the exchange and transformation of information. Scribbling teaches the brain to be responsive to its own symbolic needs: to rock itself using marks.

Nutrients cross through cell membranes, oxygen passes through the lungs, maternal love moves through arms and eyes and words to nourish the body and mind of the child. Scribbles are different. They are self-generated signals, shooting out of the arms of little children, onto the paper, traveling up to the child's eye, shooting along the optic nerve to the visual cortex where the marks set off signals to feed a brain hungry for the action that produces images and words. Exchange is at the heart of the life of the body and the life of the mind, and we see this exchange stunningly in the feedback loop between the child's hand and eye and brain.



We can't peek inside our scribbling child's brain, but if we could, we would see brain waves that will one day turn into drawings, numbers, equations, music and words. We'd see the hemispheres playing seesaw in the playground of the mind.



Rocking and scribbling are outward behavior with internal consequences. The physical ways you care for your child affect your child's brain. The ways you encourage your child to make marks affects your child's brain.

In fact, scribbling is as important to your child's development as rocking -- or as anything else you will do. Without you to see, without you to care, without you to respond, your child's scribbles will affect its visual brain as stimuli, helping the brain to see where one object ends and another begins so the child can get around in the world without bumping into things, but the scribbles will not affect your child's mind as meaning. Your child needs you for love and for literacy, and we are talking about a very big kind of literacy, multiple literacy.

For Love and Literacy

By loving your little child's scribbles, you'll lay the foundation for an entire range of learning based on symbols. Drawing and reading and writing and mathematics and music lie in those little squiggles. So does your child's ability to pay sustained attention. If you provide support for scribbling, your child will learn that attention is necessary to learning and that marks have value as meaning. Your child will also learn from you that marks have value as self-definition.

Your little child is all action. Before your little child can talk, your little child *starts to define itself as*

a human thinker by moving and scribbling. Reject the motion and the marks, reject the child. Embrace the motion and the marks, embrace the child.

Literacy and Co-Evolution

Let's not get tangled in that old argument about how briefly we humans have been literate in the long history of human evolution, offering that short history of literacy as the reason why children have trouble with writing and reading. We humans have been literate since we dragged a toe through the dust to indicate direction or made a mark on stone with charcoal to celebrate fertility or carved marks on bone to calculate quantity. We're mark makers. No other language-using creatures use marks to think the way we do. How do we know? Other creatures do not draw representationally or write or compose music or calculate using mathematical notation. If they did, we would have some record of their marks. We've got ours in caves. If other creatures drew cattle and horses in caves, punctuating them with tectiforms and double dashes, we'd have found them. If marks of meaning were part of their evolutionary repertoire, those creatures' descendents would still be making meaningful marks.

Children write and read pictures, naturally and instinctively. They scribble and draw. Their brains are coded for literacy. Literacy is what makes us different from other language-using creatures. We play around with marks inside our brains like Legos or toy blocks. Our marks and our brains have co-evolved, just as our brains will continue to evolve, using the tools we invent for thinking. No matter how we generate marks using pencils, paints, keyboards or light pens, we use them to think. If children are having trouble doing what their brains have evolved to do, something's wrong. Rather than blame schools, let's encourage parents.

Literacy and Identity

My mother used to say to me, "How do I know what I think 'til I hear what I say." The older I get, the truer this seems. But we need to add not only our spoken words, but our drawings and writings if we want to know who we are. How do I know what I think until I draw it? How do I know what I think until I read what I write? It's the same with our children.

By looking at children's scribbles, by listening to what they say about them, by appreciating their drawings, by reading what they write, we get to know our children. By honoring their marks, we're encouraging children to become who they are as visual and verbal thinkers. Experts who teach writing emphasize the vulnerability of young writers. The tiny scribbler is vulnerable, too. We need to be careful about how we talk to little children about their scribbles. Belief in the self is tied to the wing tips of scribbles.

Many adults stopped drawing after one insensitive remark from an adult about their drawings. How many of us are scared to write for the same reason? Or talk? As a new granny, I am reminded all over again how alert, responsive, and vulnerable children are. We can harm them with a tone of voice, a dismissive gesture, an angry word. We can shake whole worlds without resorting to physical violence. Disinterest in scribbles will do.

I recently asked a group of nineteen eighth graders how many had scribbled on the walls when they were little. Twelve could remember scribbling on the walls. They also remembered the negative

reactions. This teaches us two things: children need to scribble and children need acceptable places to scribble.

Motion and Marks

My father's favorite photograph of me is at age two, "Skeezing a wag." I was wringing out a wet cloth: all action. My favorite photograph of me is standing proudly beside a mural my mother let me paint as a teenager on the dining room wall. I was still action, but not me as my my body, me as my marks.

Our babies make their first marks in space -- kicking and reaching. They make their first marks with sound: crying, practicing their consonants, laughing uproariously. Gestures and sounds are marks -- brief, and, if we insist on thinking that only marks as written text are visible, then invisible, but marks none the less. When children scribble, their physical and mental gestures become visible. The marks of their bodies and minds take on permanence. Scribbles prepare infant brains to record the sounds of speech, the sounds of music, quantities and relationships and ideas-- things we can not touch and we can not see. Their brains are learning to make the invisible world visible. When your baby is hungry for food, you feed your baby. When your child is hungry for art and literacy, feed your baby with marks.

Multiple Sign Systems

Just because most of us grew up with one sign system like writing, or maybe two, like drawing and writing, is no reason why young children now can not grow up with four sign systems. We've made art into the activity of specialists. We've done the same with literature and science and mathematics. I know from research and from observation and from experience that the specialist point of view is wrong. All of our brains are programmed to make marks of meaning. That's what "art" solves to, what "literature" and "writing" solve to, what mathematics and musical notation and the equations of scientists solve to: marks of meaning. And it all starts with scribbling.

Besides marks, other factors useful to the production of art and literature and science and mathematics and music are practice, skill, confidence, curiosity and passion. This is where parents come in. Your attitude toward your children and their marks makes all the difference in the adult life of your child as a thinker. If you encourage your child to use more than one system, and, in fact, to translate between symbol systems *just for the fun of it*, your child will become a multiliterate thinker.



Dr. Susan Sheridan is an artist, writer, parent and teacher. She received her undergraduate degree in Classics and English from Harvard College and her MAT and her doctorate in education from the University of Massachusetts in Amherst. Dr. Sheridan has taught English and Art at the middle school, high school and college levels for the past twenty years. She lectures on her theory of education Neuroconstructivism, and offers workshops on her cross-modal practice Drawing/Writing, as well as multiple literacy strategies, supported by the textbook Drawing/Writing and the new literacy, 1997. Susan is currently working on a book for parents, The Scribble Hypothesis. Contact Dr. Sheridan for access information:

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