

Voices Inside Schools

Notes from a Marine Biologist's Daughter: On the Art and Science of Attention

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Through an autobiographical lens, Anne McCrary Sullivan explores the sensory and emotional aspects of attending and their implications for teaching, learning, and research. Her poetry and stanzaic prose attempt to awaken in the reader an artistic engagement with the various meanings of attention. Her use of this genre challenges traditional approaches to representing knowledge.

In an age of attention deficit disorder and of frequent teacher complaints that overentertained children do not want to pay attention, the issue of attention in educational settings is critical. John Dewey's early insistence that curriculum grow out of the interests of the child (Dewey, 1902) included the concept that students would, without coercion, give attention to matters and materials of immediate relevance to their lives. A strong contingency of educators and researchers continues to find this concept critical. More generally, the focus has been on how to get students to pay attention whether or not the curriculum has interest or relevance — how to trick, entertain, bribe, or coerce them to perform (Kohn, 1993). Historically, in the field of education, our concern with engaging and maintaining student attention has been consistent, but our investigations of the nature of attention and its development rather limited.

What exactly are teachers asking for when they say, "Pay attention"? What are the relationships between attention and intrinsic motivation? Is it possible to teach habits of attending? How can we enroll peripheral attention to the advantage of education? How can we know the long-term effects of attending?

In the realm of educational research, qualitative researchers call for learning about phenomena by giving them sustained attention. What is the nature

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of the researcher's attention? How do we learn to attend with keen eyes and fine sensibilities? How do we teach others to do it?

My autobiography is largely an autobiography of attention — learning it, teaching it, discovering its role in research. It's a story that began when I was very young.

I. An Autobiography of Attention (Part I)

Notes from a Marine Biologist's Daughter

My mother loves the salty mud of estuaries,
has no need of charts to know what time
low tide will come. She lives
by an arithmetic of moon,
calculates emergences of mud,

waits for all that crawls there, lays eggs,
buries itself in the shallow edges
of streamlets and pools. She digs
for *chaetopterus*, yellow and orange
worms that look like lace.

She leads me where *renilla* bloom
purple and white colonial lives,
where brittle stars, like moss,
cling to stone. She knows
where the sea horse wraps its tail
and the unseen lives of plankton.

My mother walks and sinks into an ooze,
centuries of organisms ground
to pasty darkness. The sun
burns at her shoulders
in its slow passage across the sky.
Light waves like pincers
in her mud-dark hair.

Mother Collecting Marine Specimens

She poles the skiff from sunlight
into the drawbridge shadow, eases
against a piling, its muddy shapes
exposed by lowering tide.

In a cave-like cool, she nudges
grey clusters, crusty forms.
She scrapes, selects,
lays silty bits and clumps
in a bucket of clear water.

Intent, she peers and plucks.
A streak of blood appears on her thumb.
She doesn't notice. She never does.
I slide a finger over creosote blisters,
hear them pop, feel them flatten,
then stare into the realm of the underbridge —
great toothy gears, twisted cables.

Above our boat, the whirr of tires.
No one knows we're under here
or thinks of these barnacles,
their hair-like legs kicking
just below the water line.
Bells begin to clang, the hum
ceases, the bridge shudders,
its teeth begin to grind.

When we reenter brightness
and the ordinary pitch of traffic,
I lean to look in Mother's bucket:
green stones, yellow trees,
purple stars, an orange flame.

Herding Fiddler Crabs

The sun is high, beginning its downward arc.
Our pits, buckets buried in mud to their rims,
are ready. We encircle the herd, our arms
raised in mud-smeared curves, mimicking
the crabs' outspread pincers.
We stamp our feet, close in.
They flee like receding tide.

I remember the films shot from airplanes,
the estuary greens, blues, blacks
curving around each other's shapes,
and on the mud flats, herds
of indistinguishable bodies
making silent, amoebic migrations.

It's different down here. Listen.
Thousands of clicks,
the small collisions,
claws and carapaces,
finely jointed legs landing
in frantic succession
on mud. And there —
so many tiny fallings.

Mother in Water

“Did you see
how she stared and trembled?
If I ever get like that
I want you to row me
beyond the breakers,
push me over.
I mean it. Promise.”

Sometimes I see us
in a small white boat.
At the bow, she sits,
back erect,
facing forward.
Her head jerks lightly.
I row. My arms ache,
eyes sting.
Behind us, land
flattens to a line.

Before she was twelve
she knew these waters,
poled alone
in a wooden skiff
through the winding maze
of slough and marsh,
channel and sandbar;
she'd beach the boat,
take off her shirt and swim.

Only water now. Water.
How easily, quietly
it opens. Just
beneath the surface
I see her gliding,
gills opening,
expanding like sponges,
waving like feathers.
A flash of silver
darts into the green.

How I Learned to Love Picasso

At nineteen, I knew nothing, wanted to know everything,
including why those paintings hung in the Petit Palais,
why people lined up for blocks in the cold,
why I stood with them blowing clouds of breath.

Les Demoiselles D'Avignon. I stared
at fractured shapes and faces,
pondered all that flesh pink
and then one leg
where a thick blue line
plunged from thigh to calf.

I imagined that line gone.

Learning Blue

My mother taught me blue —
water under the boat,
shadow in the marsh,

blue flashing
at the sides of fish,

blue crabs waving
blue and white claws,

blue speck
at the clam's inner hinge,
just beside
where the soft body lies.

Now I learn blue again —
oyster bruise
at my inner thigh,

blue-black ink
of the squid's soft gland
deepening, spreading, tender.

Beware: The Poet Comes for Tea

She sits, rattles the ice in her glass,
laughs at small talk, but
she's looking under your skin.

She sees your bones, that fine crack
in the left radius; she hears the blood
rushing out of the heart, leaping

into its hopeful journey,
then limping back to the side door,
knocking lightly, pleading.

She feels that spark at the synapse,
flinches, just barely; you don't see.
Later, she goes to her room and writes
your life. She will mail you a poem
which disrupts breath, makes you weep
for all you thought hidden, interior, safe.

Dolphins

This evening, in diffuse light,
I learn from dolphins what I must know
of poems — how they break the surface
when least expected, make their arcs
in peripheral vision. Startled

at the first glimpse, I jerked to see
their fine motion, the dark lines
tracing their quiet way.

I had been walking, just walking
the curve of the shore, thinking of

who knows what. Who cares? It's gone,
replaced. Oh, grace! I turned
to follow their benedictions, my pace
matching the pace of one slow swimmer.
Each time it rose, it rose

beside me, until it turned
to deeper water. I saw
the last blip of its dark morse code,
then stood and stared,
watching and wanting.

Water and water and water.
Visions cannot be commanded.
The air grows chill now with pink
consolation. One line of light
lies on the nervous surface.

When I die

Write to my friends.

Tell them what time of day or night
I died and what the weather was.

Tell them the color of the walls
that last contained me.

Describe the quality of light in the room,
its brightness or its grayness. Did light
make a pattern on my face?

Tell them if I closed my eyes myself; or
give the name of the one who closed them for me.

Tell if there were flowers in the room,
or outside the window, or if there were any scent
that might be called the scent of death.

Tell them the sound of my silence.
Listen carefully for this.

Say who pulled the sheet over my head;
describe the shape of my body under it.

When had I last listened to music?
What was the sound of my last breath?

Was there any small ugliness?
A trail of saliva? A drooping?

Did anyone notice an insect in the room?

Write quickly; avoid nothing.
My friends are poets. They need details.

II. Poems in the Academy (Part 1)

Poems are an anomaly in educational journals. Many readers will be puzzled about the presence of these poems, unsure of their relation to educational inquiry and theory. I would suggest that the relations are multiple, subtle, and complex, and that these very characteristics are part of their potential value.

As a case study of a woman whose life has been grounded in attention, these poems collectively raise significant questions about the nature of attention: how it develops; whether a model of intense attention has power for teaching attention; how attention to external realities might facilitate awareness of internal realities; how focused attention to an immediate reality may engage memory and/or imagination. "The purpose of art," says novelist James Baldwin, "is to lay bare the questions which have been hidden by the answers" (1962, p. 17).

As a collection of forms that construct their organization from the web-like motions of the mind, rather than in the linear discursive patterns traditionally prescribed by the Western academy, these poems invite new ways of engaging with the problem of attention, new ways of investigating histories of attention, and complementary ways of mapping such investigations.

As representations of lived states of attention, they resonate with recent brain research related to attentional phenomena, including the roles of peripheral and focused attention (Caine & Caine, 1994; Lozanov, 1978), and the significance of emotion in engaging and sustaining attention (Csikszentmihalyi, 1991; Damasio, 1994; Sylwester, 1995).

Incorporating highly concrete observations, these poems exemplify a degree of concreteness and detail that has potential for enriching both the accuracy and power of traditional field notes, as qualitative researchers strive to evoke the worlds they represent.

As manifestations of a way of processing information and experience that differs from long-established, well-entrenched, but recently challenged academic norms (Barone & Eisner, 1997; Eisner, 1997), these poems, appearing in this particular place, constitute a political statement on behalf of the enfranchisement of artists, whose voices have been marginalized in the academy.

III. Aesthetic Vision: A Complex Attention

Aesthetic vision suggests a high level of consciousness about what one sees. It suggests an alertness, a "wide-awakeness" that Maxine Greene (1978, 1995) has urged educators and researchers to learn from artists.

Aesthetic vision engages a sensitivity to suggestion, to pattern, to that which is beneath the surface as well as to the surface itself. It requires a fine attention to detail and form: the perception of relations (tensions and harmonies); the perception of nuance (colors of meaning); and the percep-

tion of change (shifts and subtle motions). It dares to address the ineffable (Eisner, 1979).

Aesthetic vision adjusts the flow of time. It may seize a moment in order to stare at it and see more fully, more deeply, but aesthetic vision does not assume that what one sees in the moment is what one will always see. It perceives the potential for transformation within any apparent fixity — a block of wood, a piece of clay, a display of words, the configuration of a classroom, or the behavior of an individual child.

Aesthetic vision is always from a specific point of view, filtered by a specific consciousness. It is personal and situational. It includes emotion, imagination, and paradox. It embraces complexity.

Teachers who function with aesthetic vision perceive the dynamic nature of what is unfolding in front of them at any given moment. They know how to “read” students, respond quickly, and reshape the flow of events (Eisner, 1979, 1983). They do not accept that what they see is immutable. They have a finely tuned sense of how to move toward new pedagogical configurations (Greene, 1994).

Likewise, researchers with aesthetic vision perceive the dynamics of a situation and know how to “read” it. They look at details within their contexts, perceive relations among the parts and between the parts and the whole. They look for pattern within disorder, for unity beneath superficial disruption, and for disruption beneath superficial unity. They construct forms and suggest meanings.

IV. An Autobiography of Attention (Part 2)

My mother, the scientist, taught me to see. She taught me attention to the complexities of surface detail and also attention to what lies beneath those surfaces. She taught me the rhythms of tide and regeneration, and the syllables of the natural world rubbing against each other. In doing so, she made me a poet.

My mother, the teacher, held classes in mud and water and light. She taught with buckets and shovels and nets. Her students’ tennis shoes, and hers, squished loudly as they worked, discovered, learned. I observed that my mother and her students were happy. I became a teacher.

My mother, the researcher, went into the field twice a day whatever the weather for years, methodically, with her plankton nets. Then she sat patiently at the microscope on the kitchen table, observing, noticing, discovering patterns, making sense. In that kitchen, I learned the patience of research.

My mother made order of the raggedness of the living world, and I was paying attention. But I didn’t know at the time that I was, and I’m quite sure that she didn’t think I was. I gave little overt attention to her work. She

dragged me along on the mud flats, to the boat docks, under bridges. I went and entertained myself as best I could. While she focused intently on the organisms that grew on pilings, paying such acute attention that she didn't even notice the bleeding cut on her hand ("she never did"), I was distractingly popping creosote blisters.

And yet, there is another layer to this, because years later I remember with a vividness and an intensity that compel me to poetry. On some level, in some hidden and inarticulate way, I must have been attending and recording extremely well. I was learning, internalizing, without any direct instruction.

Mother did sometimes offer direct instruction, telling me the Latin names of organisms and placing them in their scientific categories. I remember very little of what she taught me in this direct way. What I do remember is so deeply embedded in experience that it has entered my ways of thinking and perceiving, my very way of being, without the intermediary of language — at any rate, without language that addressed this learning directly.

What did physicality and emotion have to do with my learning and with sublingual attention? How important were the tactile impressions of sun on my skin, mud beneath my feet, the water's salt at my lip, the rockings of Mother's wooden boat? How did they matter, those lappings and squishings, the bubblings and "thousands of clicks, / the small collisions, / claws and carapaces?" What did I learn from surprise and delight at the laciness of the worms she dug up from mud, the "yellow trees, purple stars, an orange flame" suddenly in her bucket? What are the implications of this for education in a society that demands artificial attention and immediate testable results? What are the implications for researchers who are trying to make visible the invisible processes of cognition?

V. Poems in the Academy (Part 2)

Poems, born of attention, also invite attention. They rarely get it. As a society, we have not been taught how to attend to art, how to "read" it, how to process its content or its potential for generating useful questions. We are relatively illiterate in the arts, even those of us who are otherwise deeply and well educated, unless we have specifically sought those kinds of reading lessons. As a culture, our lessons in art have generally been indirect and have indicated that art is peripheral, an expendable extra. In short, to borrow a term from John Dewey, we have been *miseducated*.

Dewey understood and defended, sometimes a bit feistily, the role of art as a way of encoding knowledge about complex relations:

To think effectively in terms of relations of qualities is as severe a demand upon thought as to think in terms of symbols, verbal and mathematical. . . . Production of a work of genuine art probably demands more intelligence than does most of the so called thinking that goes on among those who pride themselves on being "intellectual." (1934/1980, p. 46)

Many in the academic community, not having been taught to read aesthetic forms, reject them as representations of knowledge. If, however, we are to become literate in a wider range of the forms in which knowledge may be encoded, we must give attention to these forms. We must stare at them, ponder them, arrive at an understanding not only of what the forms contain, but also of how form informs.

Walker Evans, the early twentieth-century photographer, an arts-based researcher long before the term became popular, advocated focused attention as a way of coming to know. He advised us, "Stare. It is the way to educate your eye, and more. Stare, pry, listen, eavesdrop. Die knowing something. You are not here long" (Thompson & Hill, 1982, p. 161).

Contemplating my own autobiography of attention, I become aware of the extent to which I have learned about visual art simply by staring at it, as in "How I Learned to Love Picasso." I stood in front of that large painting, *Les Femmes D'Alger (O. J. R. Version O)*, and stared, allowed my eye to move as it would among the details. I stared with a curious eye, an eye that didn't yet know how to understand, didn't yet know that art could teach me. For rather a long time I stood there, wondering what I was "supposed" to be seeing. Then I allowed imagination to guide my vision. When I imagined that blue line gone and suddenly felt in the painting a shift of energy and balance, a loss that I couldn't articulate but that I undeniably felt as loss, I realized for the first time that all of the parts of the composition mattered. Any alteration of the part would have an effect on the whole. Nothing was accidental. There was an ecology of the work of art. This was, for me, a revolutionary and long-lasting insight, as was the new understanding that I could learn about art by giving it focused attention.

How often do we teach children in school this kind of attention? How often in school were we ourselves encouraged to stare?

VI. Teaching Attention

How might we teach attention? I've been struggling with that question for over twenty years now. When I taught high school English and creative writing, I was always searching for ways to bring students into attention, the sort of deep attention that would elicit the capacity for poetry that I believed they all had in them. I would do things like take them out on the broad lawn in front of the school, have them spread out, each to sit alone and watch a small patch of grass, to observe and record "what happens there."

The wording, "what happens there," was important. Skepticism about this assignment was generally high among my students. "Just stare," I would say. "Stare at the grass until something happens." No one ever failed to see things happen. Small events became sources of excitement — an ant crawling up a blade of grass, a flutter of motion produced by a breeze, a shifting of light, the crossing of a cloud shadow.

In another homework assignment, I would ask them to “find a place where there’s nothing going on. Sit there for ten minutes and record everything that happens.” In response to this assignment, tenth grader Rhonda Rogers sat on her back porch and made the journal entries that led to this:

Secluded
and alone,
I sit searching.

The nightly cicadan chant
converses with itself.

A cricket’s flat drone echoes,
rattlingly hollow.

Zephyrs shudder empty limbs.
Detached leaves scuttle on pavement.

A dog passes,
his nails click, click, clicking
on asphalt.
In the distance, one lonely
wails.

Forlorn, questing cars
slug into darkness.

An isolated airplane
dissolves into vacuous night.

In houses nearby,
occasional voices, indistinguishable,
mumble.

Somewhere, a door slams shut,
closing someone in —
or out.

Self-trapped moths flutter,
taunt lights
until their muted thuds
interrupt a clangorous quiet.

My mind reaches . . .
Through raucous recess,
damns this solitude. (Rogers, 1984, p. 31)

Clearly, Rhonda had a gift for language that this assignment did not teach her. But with this and other assignments for attention, her capacity for subtle detail and fine distinctions increased, her work as an artist grew richer with particularity and concreteness. She was developing as an artist and, I would

suggest, as a researcher in the world of her experience. As we consider her poem now, we may also find that it raises interesting questions about the researcher's positioning: the role of the subjective perspective in selecting and arranging details, and the inherently interpretive nature of reporting.

Attention, Empathy, and Research

When I left the world of teaching high school and entered a university context, I continued explorations in poetry and attention as they related to teaching and to research. Working with preservice teachers, for example, I gave the assignment: "Choose a student to observe over a period of three weeks. Select a student who is different from you, one you have trouble understanding, maybe one who drives you up the wall. Record the child's actions and reactions, audible language and body language." It was a traditional sort of case study assignment except for the product it required: "Construct a poem, from the point of view of the child you have observed, incorporating at least one fragment of that child's speech."

Students reported that this was a very difficult assignment, not because of the poetic form — I had taught them strategies that related data gathering to poetry and we had written poems — but because of the difficulty of getting inside the skin of someone "so different from me." To get under the skin of the other, rather than to simply report observable externals, demanded a deeper sort of attention, an attention that required an imaginative penetration of barriers and that conjoined with empathy.

Shelley Scholl, one of my students, asked if she might modify that assignment a little. She wanted to write a short poem representing each of the students in the twelfth-grade English class in which she was interning, not actually speaking in first person but representing something of what she knew or imagined of the student's inner life. This is what her short poems looked like:

i.
Silent in the corner,
Luke Pennington
stares down at his boot toes,
out the window,
sketches vultures,
wishes he were
anybody else.

ii.
Karen holds her breath each night,
holds Clay in the swaying single-wide,
fingers her engagement ring
and prays for eighteen.

iii.
Stephen's left leg
juts a leaden semi-arabesque
into the aisle between the desks;
Cheek pressed against the unread text,
he dreams of his future. (Scholl, 1995)

When I read Shelley's collection of small poems, it was clear that she had focused a keen attention on these students and that her attention to exteriors had helped her go more deeply into awareness of complex interiors. The class she was teaching was, by many evidences, "difficult." It was a class that could and did try the patience of the supervising teacher as well as her intern. But Shelley reported that her patience grew as she focused attention on individuals and deepened her sensitivity to their contexts. Maxine Greene has proposed that engagement with great works of fine art may open the imagination's way into empathy (Greene 1995). Making art, "fine" or otherwise, also has this potential.

In the research realm, Elliot Eisner observes, "One job that scholars increasingly want done is engendering a sense of empathy . . . because we have begun to realize that human feeling does not pollute understanding. In fact, understanding others and the situations they face may well require it" (1997, p. 8).

VII. On Attention, Education, and Art

To deny the potential role of artistic attention and artistic representation in investigations of educational issues is to limit our approaches to knowledge. It is the researcher's essential role, Eisner contends, "to highlight, . . . to call to our attention . . . to deepen and broaden our experience . . . to help us understand what we are looking at" (1991, p. 59). These are also essential roles of the artist. Lawrence Stenhouse maintains that "all good art is an inquiry and an experiment. It is by virtue of being an artist that the teacher is a researcher. . . . The artist is the researcher *par excellence*" (1988, p. 47).

The artist is a researcher with his or her whole organism, inquiring, testing with the body as well as the mind, sensing and seeing, responding and retesting — a multitude of functions performed simultaneously — registering complexity, then sorting, finding pattern, making meaning. To the extent that the artist is a connoisseur (Eisner, 1991), to the extent that he or she has a rich repertoire of experiences against which or within the context of which to "test" (Schön, 1983), the artist becomes an astute researcher, capable of illuminations and new meanings, new visions of possibility, new questions. We must not overlook the potential role of the artist, alongside that of the scientist and the traditional educational researcher, in our investigations of attention and other critical educational issues.

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