

STRATEGIES TO SUPPORT CONCENTRATION

by Annette Haines

Annette Haines provides a comprehensive overview of concentration across the planes. She first lays the foundation for thinking about student engagement: It must be understood that concentration is found through the interest of the child, which is guided by the sensitive periods. When we understand the child's development in this way, we can offer the most likely "hooks" to catch the child's interest and create engagement. Haines offers examples of hooks at each plane. Along the way she weaves in the science of the brain to further enhance understanding of the development of the young child and to reinforce the "why" behind behavior.

The hook, defined as strategies to support concentration, is really what Montessori is all about.

THE PREPARED ENVIRONMENT

Maria Montessori wanted the prepared environment to be a laboratory for the development of concentration with great care given to such things as the lighting, wall color, and noise level. She wrote:

The environment must give the child every facility for concentration and choice. The objects in this environment

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should be retained with ease in the memory of the child. There should be a quantity of objects all of which, in due course, a little child will be able to remember. He will also be able to remember the place where the object belongs so that after a time the environment will no longer impress the child as something new; and thus at this point it will not distract his attention. ("Concentration" n. pag.)

She also believed that true interest and the concentration that followed was only possible in an atmosphere of freedom. When a child was in a sensitive period, the child's psyche was aflame with a kind of love or enthusiasm for certain things. She saw the sensitivity as a kind of spotlight that focused on one thing while leaving the child indifferent to another. If the child was given freedom of choice in the formative period, the sensitivity would act as an inner guide and direct the child towards what was necessary for development.

Montessori believed that a proper environment could be arrived at scientifically. She felt that there was,

The possibility of experimentally determining the means for psychic development. (These could be established with such precision as to bring into existence a real relationship between the inner needs and the stimuli, just as there exists a relationship of form between the insect and the flower ("My System of Education" 10).

She proceeded to make experiments to determine the kind and number of objects to include in this environment. By experimentation, she thought she could establish "with the greatest precision, all necessary exterior stimuli definite in qualities and quantity." For example, "small frames of different forms, arouse(d) only a temporary and transient attention in a child three years of age," but by gradually enlarging the size of the dressing frames until the limit was found "at which the attention (was) steadily held," she believed that activity would become "a factor of development." ("My System of Education" 10)

The Montessori environment for three- to six-year-olds was designed to appeal to the sensitive periods of young children. As when the body craves a particular food, the young child was thought to crave certain environmental experiences, a kind of food for the



mind. When a so-called sensitive period focused the child's energies towards one aspect of the environment, the information or characteristic associated with that aspect was thought to be assimilated "rapidly and brilliantly" (*The 1946 London Lectures* 17).

THE ADULT

All of the objects and activities of the prepared environment are "hooks" for concentration. They correspond to the child's natural interest. With interest comes repetition and with repetition we get concentration. But the prepared environment is not complete. The

trained adult, the Montessori teacher or guide, is needed to be the *dynamic link* to get the whole process going and to keep it going.

For the “teaching teacher,” Montessori says, “There has been substituted a much more complex combination” consisting of the teacher and the many different objects of the environment that cooperate in the child’s education. Because the child actually teaches himself when he works with the materials, the teacher, then, does not teach!

In St. Louis we have recently added a young children’s community for children 15 months to 3 years. I am learning so much because the YCC, as we call it, is a different world from the Children’s House. Because with very young children, of course, we realize we have very little direct influence. The young child, the infant and toddler, is a *spiritual embryo* and is absorbing his world, everything around him, unconsciously. Nature focuses his attention on those things that he needs for his development.

For the very young child, the hook we are alluding to is more biological. Infants do not choose what interests them; nature chooses it for them because they have to finish the organization of their minds, which couldn’t happen before birth because it relies on experience in the world. In the primary class, the child’s interest leads to repetition of an exercise, as Montessori wrote about in the *Secret of Childhood*. In the YCC the repetition takes a different form. Karen Adolph of New York University, in a talk on play and human development, described infants’ spontaneous play as “repetition without repetition” (Hedges, et al. 3). The relationship between the young child’s body, motor skills, incoming sensory information, and subsequent learning are multidimensional and dynamic. If we narrow our observation, we lose sight of the complexity and richness of babies’ behavior. For example, toddlers walk a lot; the average toddler takes 2368 steps per hour, which corresponds to roughly 14,000 steps per day. They can travel immense distances, about 701 meters per hour or the equivalent of 46 football fields per day. Object play is similarly varied, distributed, and immense. They touch many different objects, often all at once. As Albert Einstein supposedly said, “Understanding physics is child’s play when compared to understanding child’s play.”



SENSITIVE OR CRITICAL PERIODS

Takao Hensch, professor of molecular and cellular biology at Harvard University's Center for Brain Science, begins to understand the critical periods of early childhood that underlie what we call child's play:

During the critical periods of early childhood....especially momentous changes take place. A baby begins life with a thick overgrowth of synapses that must be pared back to do their job properly. The necessary structural changes—the culling of synapses—happen during the critical period. (2-3)

No genetic program exists, or could exist, telling the brain how to rearrange itself and coordinate brain cells, how to coalesce into a cooperating group...over time the brain changes its functional connections on the basis of experience (Restak 78)

According to Hensch, "During a critical period, the child brain enters into an intimate *pas de deux* with the outside world. Incoming photons and sound waves serve as cues for the brain's molecular

machinery to lay down and select the links among brain cells that will last into adulthood and old age" (3).

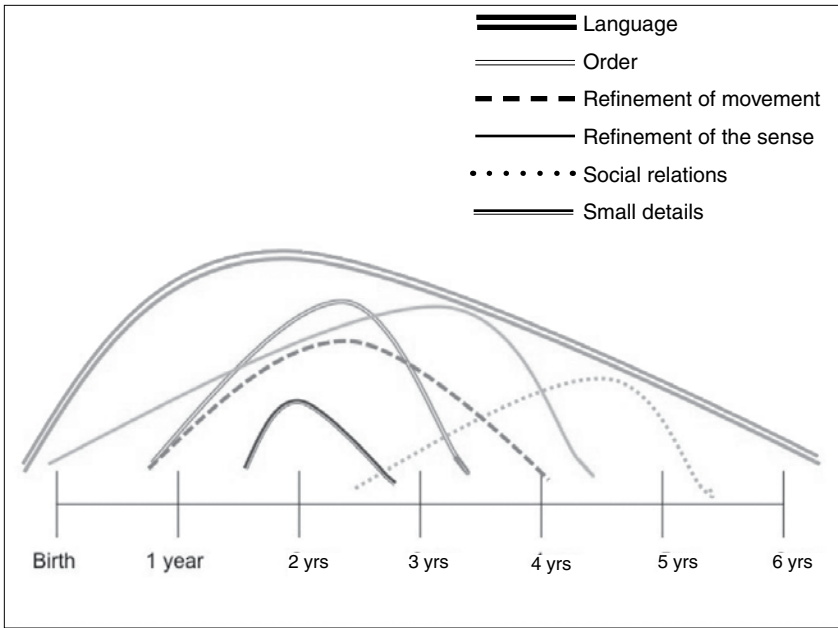
According to Hensch and others at Harvard, early in life there are critical periods for hearing and vision, when the infant actually "learns" to see and hear and wires its brain by seeing and hearing. There is also a critical period for language, as Montessori knew so well, and for certain social behaviors.

Language is an automatic hook if you are working with infants. They are instinctively drawn to look at your mouth; very early in life, the baby becomes particularly attuned to the sound of the human voice. Very soon, he looks intently at the mother's face and begins to move in synchrony to the rhythm of her voice. Montessori called it "the divine music of the human voice" (*The 1946 London Lectures* 47).

When you speak to a baby, instead of looking at you, at your face, or anything attractive that you may be wearing, like a rose or brooch, he looks directly at your mouth. When you speak directly to him, in the charming and affectionate way we speak to babies, he does not understand what you say, but he is filled with emotion and so thrilled that he begins to move his own mouth. If little children are so thrilled by seeing one's mouth moving it is because they have noticed this strange music that is the human voice.... He is full of this music from the beginning of his life. (*The 1946 London Lectures* 46)

We now know that mirror neurons may be the culprit here. A *mirror neuron* is a neuron that fires both when an animal acts and when the animal observes the same action performed by another. Thus, the neuron mirrors the behavior of the other, as though the observer were itself acting. Although a subject of speculation, some think this system provides the mechanism for ability to internalize language and social interactions, imitation, and empathy (which, when you think about it, is just inner or mental imitation.)

According to Montessori, "The psychic organs are formed around points of sensitivity" (*The Absorbent Mind* 52). "It is not the mind itself that these sensitivities create, but its organs." And language, order, and movement are the *organs* of the mind. "Each organ develops independently of the others.... While language is developing



on the one hand, the judgment of distances and finding one's way about, is developing quite separately; so is the power to balance on two feet, and other forms of coordinations" (52).

Each of these powers has its own special interest and this form of sensitivity is so lively that it leads its possessor to perform a certain series of actions. None of these sensitivities occupies the whole period of development. Each of them lasts long enough for the construction of a psychic organ. Once that organ is formed, the sensitivity disappears, but while it lasts, there is an outpouring of energy incredible to us, who have outgrown it so completely that we can no longer remember ever having had it. When all the organs are ready, they unite to form what we regard as the psychic unity of the individual. (*The Absorbent Mind* 52-53)

During each period, the Horme pushes the child toward activity and the sensitive period guides their interest. In the young child, the sensitive periods guide the interest. If you can hook into a sensitive period, you will observe repetition of the exercise, and out of the repetition comes a budding (but fragile) kind of concentration. The guide must protect the child at this point from any disturbance

because if the child has the opportunity to experience repeated moments of concentration, the child's personality develops in a wholesome, healthy way. We call this *normalization*. Those that don't understand normalization either fail completely (chaos) or begin to use coercion to achieve something that looks like normalization to the casual observer (or school administrator) but is really adult control. Normalization is a phenomenon that must happen from the inside out. It comes from a reorganization within the center of the child. We have to wait for it. We cannot *make* it happen, even though we would like to.

After the age of four or so, the sensitive periods wane. Language, the longest and strongest of the sensitive periods, is still active however. It is not the attraction to sounds and words that we observed earlier; it is an attraction to syntax and grammar and writing. And the four-year-old does not have the deadly serious approach of the two- or three-year-old. He wants to play with his language now. We have the grammar games (and they're fun and sometimes funny) and phonograms that rhyme and you can make silly poems. And there is writing: Writing is a real carrot for the five-year-old. By this age, they want to record their work and not just put it all back in the box. Let



them write. Writing is a hook to concentration. “The hands are the instruments of man’s intelligence” (*The Absorbent Mind* 27). So we hook them with the writing and illustrating of a story or with a list of phonogram words or the creation of an original poem. Children enjoy the writing and pasting or drawing of grammar symbols over the words in various phrases.

Another hook is order. The prepared environment, with its high level of order, is a hook for the child at the age when they crave it most. There are multiple levels of order: Order at the surface level means “there’s a place for everything and everything is in its place.” But the order is deeper than just having a stable, tidy room. The materials display deep order within themselves, down to the millimeter. And the order goes even deeper: the objects fit within their boxes in a certain orderly way. The prepared environment is a place where children can understand and trust that it will support them in their constructive task—yesterday, today, and tomorrow.

Work with the hands: Give them activity. Do you remember the story of the children who tore at the bread on the floor of the asylum? They needed to have something to do with their hands. All the materials, from wiping a spill to doing division with test tubes and beads, offer motives for activity. It is not so important what they do, it is important that they do something.

Movement is a hook for the child who is in a sensitive period for the development of movement, and who later will be in the sensitive period for the refinement of movement. In order to enable the child to move, we scale each of our prepared environments very carefully so there is a fit between the proportions of the environment and the proportions of the child. Children move about gracefully and easily when the environment is proportioned physically and psychologically to them.

Water is a hook. My trainer, Pearl Vanderwall, who had fifty years of practice with children said, “Put their hands in water.” Wash a table, wash hands, water the plants in the classroom, water the garden outdoors. These are some of the first activities that attract young children. These activities can be a bit messy, but do not avoid them just because there may be a bit of a mess.



Big work is a hook. Children enjoy exerting maximum effort. When you give them big work, they feel good about themselves. Big work builds confidence and self-esteem in a way that praise and “good jobs” can’t ever do. From the carrying of heavy sacks in the YCC to the 1000 chains and bank games with big numbers of the primary to the long algebraic computations of the elementary, big work attracts children of all ages. The adolescent wants to save the world. The young graduate student wants a dissertation that will solve all of our social problems, cure disease, or explain macroeconomics on a global scale. How disappointing when he learns that it is better science to narrow it to a tiny question and actually research that definitively.

After the age of four and a half or five, many of the sensitive periods have disappeared, and you can begin to follow their interest. Interest can be a hook. Maybe it is an interest in bugs or vehicles or horses

or dogs or butterflies or flowers. I had a child who loved vacuum cleaners: He made a book of “parts of the vacuum cleaner” and wrote lists of “kinds of vacuum cleaners.” This seemed a bit strange to me, but many of you can stick this idea to that one child you’ve had. For a first-plane child, keep the subjects grounded in reality and explore those things the child can understand with his senses.

But we can’t wait around for interest. How does a child know if he is interested in something if he has never had any exposure to it? A child may be interested in the tides or the weather or the moon or whatever, but they don’t know it because they don’t know enough about it. Knowledge creates interest not vice versa. And so we must do what Miss Stephenson told us: “Present, present, present” all kinds of things. Then we will see what interests the child.



For the elementary child, Cosmic Education itself is the hook. Maria Montessori understood that to explore the unknown, the far away, the long ago, and out-of-this-world ideas, using the newly formed abilities to reason and imagine ignites the child's imagination and lights the fire of intelligence. To learn to read, to draw, to calculate, and to reason—exploring a subject that fascinates—is so much more powerful than getting a lesson from a book according to a preplanned curriculum or syllabus.

The secret of good teaching is to regard the child's intelligence as a fertile field in which seeds may be sown, to grow under the heat of flaming imagination. Our aim therefore is not merely to make the child understand, and still less to force him to memorize, but so to touch his imagination as to enthuse him to his inmost core. (*To Educate the Human Potential* 11)

When I was doing my dissertation work on concentration, Kay Baker told me, "An elementary child's concentration looks different from a primary child's. They do not have to sit still in order to concentrate. They do not repeat, like the primary child. They can be talking with a classmate and still be on task." So when we observe elementary classes we must understand that attention, engagement, concentration, all those things we are looking for may look different at different ages.

But maybe at this age there really *is* less concentration! Montessori tells us in the 1946 lectures that the concentration of the type she observed in those first Children's Houses could only be achieved with small children, and then only when their hands came into play. In small children, she said, "The use of the hands brings a profound attention" (*The 1946 London Lectures* 153).

According to Hensch, critical periods of intense development last months and some last years. Most occur in infancy, but science has discovered that some arrive as late as the teenage years. Adolescence is the final period of development of the adult during which talents, reasoning, and complex adult behaviors mature. Adolescence can be seen as a critical period of cortical development that is important for establishing life-long adult characteristics.

So what is the hook for the adolescent? Well, we are still learning this. Our work with the adolescent is still a bit of an experiment as they are only now revealing themselves to us. But Montessori thought that community and friends were important at this age, and so she told us to create a social community for them, separate from their families, a boarding school in the country where they could create their own social groups and engage in the exploration of those groups as an ongoing piece of work.

The young person is drawn to opportunities that allow them to do good things. The normalized adolescent is idealistic and wants very badly to fix the broken parts of our world, so they are drawn to biology and ecology and to solving social problems. For example, a nineteen-year-old boy has invented a machine that could remove 2.25 million tons of plastic from the world's oceans (Griffiths). A high school junior has invented a cheap and noninvasive test for early detection of pancreatic cancer (Gaurav). Teenagers have always been great inventors: A fifteen-year-old invented braille and another invented the snowmobile (Evans & Shariff). A nineteen-year-old invented a propulsion system that could send spacecraft into space without using a single drop of fuel (Didymus). Inventing new things, especially things that will help others or save the world, is a real hook for the idealistic and clever adolescent.

Another hook for the adolescent is money. I remember wanting to get a job and make my own money when I was that age. My oldest daughter's first job was cleaning toilets at McDonalds and she didn't even seem to object! Projects that create funds for other projects or things they want to do is a hook for adolescents.

Productive work and a wage that gives economic independence, or rather constitutes a first real attempt to achieve economic independence, could be made with advantage a general principle of social education for adolescents and young people. (*From Childhood to Adolescence* 66)

And we all know that creative expression is another hook that can be very powerful: dance, the graphic arts, sculpture, poetry, music, etc. The inventors of Hip-Hop were age twelve, seventeen, and twelve—no real surprise (Evans & Shariff).

But let me return to the small child. The first period, the period from birth to six, my professional area of expertise, is my personal favorite. Why? "The first essential for the child's development," says Montessori, "is concentration" (*The Absorbent Mind* 222). Concentration lays the basis for the development of character and subsequent social behavior. "Concentration is always solitary, even in the midst of a crowd, and there is no real achievement without it" (Young 135) and so in order to help the child concentrate, Montessori devised an environment full of things to concentrate on and she called it the Children's House.

Those that don't understand normalization either fail completely (chaos) or begin to use coercion to achieve something that looks like normalization to the casual observer (or school administrator) but is really adult control. Normalization is a phenomenon that must happen from the inside out. It comes from a reorganization within the center of the child. We have to wait for it. We cannot **make** it happen, even though we would like to.

The work of the child is different from the work you or I do. "The child works for his inner development and not to reach an exterior aim" ("The Two Natures of the Child" 8). When he has done this work, he has not really developed a special ability, but he has developed something in himself. So it doesn't really matter as much *what* they do, what matters is that they do something that interests them deeply, something they can concentrate their boundless energies on. And even though the "many activities of small children appear meaningless, the concentration with which they devote themselves to these activities makes it evident they are important to them" (Montessori, Mario 41).

Concentration, as the word implies, is something that is gathered to a center, it is concentrated, and it is something that is focused. As it is focused, it becomes stronger, like the sunlight focused to a point through a magnifying glass. "When there is this focused point of activity, something seems to be constructed" (*The 1946 London Lectures* 154).

It is interesting to see this phenomenon of concentration in children who are given the right opportunities to exercise

themselves. People who see this say that the character of these children has changed, but what has really happened is that they have had a chance to form their character. These children have concentrated all their faculties into a unity; after this they have become persons. When we provide our children the means and opportunities in our schools, we know that they will change in this sense: disorderly, destructive, fantasy-loving children become calm and happy. That is what is so marvelous. They are newborn. (*The 1946 London Lectures* 156)

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