The Story of Maria Montessori

Chapter 25 in the book
Discoveries by Ordinary People that Changed the World
by James J. Asher

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Chapter 25

1870-1952

The story of Dr. Maria Montessori

Maria Montessori was born in 1870 in Ancona, Italy. It is odd indeed that at the age of thirteen she attended an all-boys technical school to prepare for engineering, a career that attracted few girls. But along the way, she shifted her interest and was the first woman to graduate with a medical degree from The University of Rome.

It was the practice in the 1800's to "warehouse" mentally retarded children in the insane asylum with the assumption that the children were "uneducatable." They languished as "lost souls," abandoned and forgotten. As a member of the University's Psychiatric Clinic, Dr, Montessori was assigned to see whether anything productive could be done with these children.

Maria starts by merely observing

Maria observed the children's aimless movements about the ward with no guidance from anyone. She decided to try something basic such as showing the children how to tie their shoes. She was delighted when they responded by mastering the task. She had an insight: Perhaps the way to reach these children was through the sense of touch and movement. She

devised a simple task of buttoning and unbuttoning a garment, which worked. The children were able now to dress and undress themselves.

Maria later wrote, "(if children could express their inner needs, they would say) 'Help me to do it alone...' Children who are self-sufficient, who can tie their shoes, dress or undress themselves, reflect in their joy and sense of achievement the image of human dignity, which is derived from a sense of independence."

Maria was now inspired to try for higher level skills such as reading and writing. She cut out letters from a wooden board and invited the children to pick up a letter and find where it fit on the board. The task seemed to intrigue the children. The physical manipulation of objects and letters captured their interest so much that "the first Montesori miracle" happened. When "defective" eight-year old children took the State examination for reading and writing, they not only passed, but achieved above average scores.

If it works for mentally retarded children, it should work for normal children

When Dr. Montessori visited elementary schools, she was appalled and later wrote: "(I found) the children were like butterflies mounted on pins... fastened each to ...the desk, spreading the useless wings of barren and meaningless knowledge which they had acquired." She disapproved of the enforced silence and immobility, the use of rewards and punishment, and strict discipline in public schools.

What Dr. Montessori never knew

What Dr. Montessori could not know is that she had discovered how to open a channel to the right hemisphere of the brain. It may be the most important channel to reach children and adults for first trial learning of any skill: reading, writing, mathematics, foreign languages, and sports.

Neuroscientific research in the 21st century would continue to decipher the code of the right brain to enable people of all ages to acquire information in the first exposure.

Here is a sample of the research based on the work of Melvyn A. Goodale and his colleagues that explains visual illusions. Visual illusions have been a fascinating mystery to psychologists for more than a hundred years.

The two visual pathways in the brain

Goodale and others demonstrated with visual illusions that there are two different visual systems in the brain that work like this:

The two visual pathways are transparent in the visual illusions

There are dramatic difference in the two visual systems: *Figure 1* shows four horizontal lines of identical length labeled A, B, C and D.

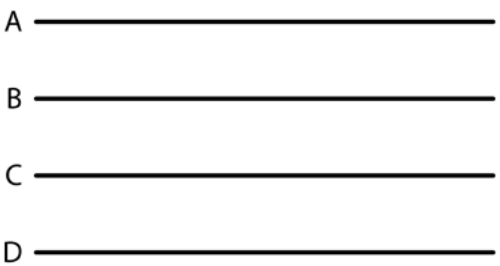

Figure 1

Look what happens in *Figure 2* when we add arrowheads at the ends of lines C and D. Line D appears shorter than Line C. This is the famous Müller-Lyer Illusion, one of many visual illusions that have fascinated psychologists for a hundred years. Just looking at the display in *Figure 2* creates the

Müller-Lyer illusion and lights up a stream of ventral brain cells in the secondary visual system.

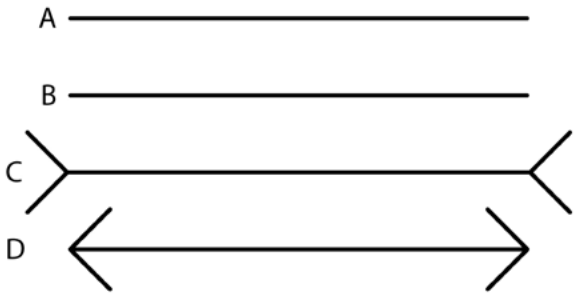

Figure 2

Now, what Goodale and others have demonstrated is this: When a subject's hand is wired with sensors as shown in *Figure 3* and the person is asked to reach into a three-dimensional Müller-Lyer, the thumb and index finger extend the exact length of Line C and Line D.

Figure 3

So, even though the subject reports seeing the lines as different in length, *the person's fingers match the reality that A, B, C and D are the same length.* This physical interaction with the display lights up the dorsal stream of the primary visual system and makes the illusion disappear. The thumb and index finger seem to activate the dorsal stream as the person deals

with the "real" world. Subjects who sit and look at the display activate the ventral stream as they deal with a "constructed" world of visual perception.

The role of evolution in vision

Primary visual perception (that activates a dorsal stream of brain cells) may have appeared first in evolution because it deals with the "real world." Primitive humans used the primary visual perception of hand-eye coordination to capture and gather food; then grasping and picking up the food to eat with one's hands. Maria Montessori tapped into that system with dramatic results for children of all ages and abilities.

Later in evolution

First came primary visual perception with primitive humans. Thousands of years later, secondary visual perception appeared using a stream of ventral brain cells to deals with a unique place called "school." Here, learners called "students" gathered together to sit in a place known as the "classroom" where a person designated as the "teacher" attempts to communicate a thousands bits and pieces of information. The goal is to transform the students into "good and productive" citizens.

Primitive humans did not need school

Primitive humans needed none of the skills and information necessary for the safety, comfort, and survival of modern humans. The first "humans to stand up and make utterances" did not need reading, writing and mathematics. Nor did they need finance, parenting, insurance, money, checkbooks, or etiquette plus thousands of other pieces of information that requires one to spend years in a special place called "school." The first humans on earth may have activated the dorsal stream of brain cells exclusively as they operated day by day with the "real" world using only primary visual perception.

The traditional school did not work for Marie Montessori's children

The unique place called "school" attempts to "construct" the world for students who sit in chairs, looking and listening, rather than physically interacting with information which was characteristic of primitive humans. So, unknowingly, Maria Montessori discovered that using primary rather than secondary visual perception, she was activating a stream of dorsal brain cells that are more effective in learning anything and everything.

Students in traditional classes

In traditional classrooms. students sit as someone standing in front of them "constructs" the world in words and pictures day after day. The only motion from students is perhaps to write something or occasionally raise their hand to ask a question. Otherwise, they like statues which is what Maria observed in visiting the public schools.

> "(I found) the children were like butterflies mounted on pins... fastened each to ...the desk, spreading the useless wings of barren and meaningless knowledge which they had acquired."

When we ask students to sit down and be quiet, we sentence them to "by heart" learning with repetition over and over until information is imprinted with secondary visual perception. When this happens, the student is rewarded with an "A," and we pronounce that the student is on the way to being "educated."

My own research with the *comprehension-first principle of learning languages* is in harmony with Maria Montessori

The noble goal of the 20th century was to acquire a second language. The effort was not a stunning success since

less than five percent of students actually achieved fluency in another language. Given the explosion of valuable information in the last decade or two about the right hemisphere of the brain, a realistic goal in the 21st century is fluency in multiple languages. For example, one discovery is that language learning was "dragged underwater" in the 20th century by the myth that fluency begins with speaking. Actually, the reverse is true. When speaking appears, language learning has already taken place.

There is no way students of all ages can acquire multiple languages if we continue playing to the left hemisphere of the brain with exercises such as, "Listen and repeat after me!" or "Memorize this dialogue" or "Conjugate this verb."

My research shows that the best chance for long-term retention of anything, including mathematical concepts, is to get it in the first exposure. For complete details, see the book by James J. Asher, *Learning Another Language Through Actions* (7th edition), published by Sky Oaks Productions, Inc., Los Gatos, California.

Back to the Maria Montessori story

In 1896, something unpredictable happened. Maria was invited to give a lecture at the Educational Congress in Torino about her experience with disabled children. In the audience was the Italian Minister of Education who was so impressed with her story, he appointed her director of the Scuola Ortofrenica, a national institution for the care and education of the mentally retarded.

Her success with these youngsters unlocked another door. She was invited to open a child care center in the basement of a delapidated tenement building in the poorest neighborhood in Rome. The preschoolers, from ages three to six, were scribbling on walls in the corridors and causing mischief. Maria was asked to start classes for these children right in the tenement building. This would be a pilot project with fifty to sixty children.

Maria reached out to wealthy ladies who donated toys, teaching materials and money. She hired a forty-year old woman who had not been trained as a teacher to lead the class under Maria guidance and direction. The "Children's House" opened on January 6, 1907.

How did the program work?

Maria provided the children with toys and educational material but did not try to teach them anything. She wanted to see what the children would do on their own.

Here is what happened

Soon the children tired of toys such as balls, dolls and wagons but showed sustained interest in educational materials and immediately began putting the wooden circles, squares, and triangular shapes into the correct spaces.

She intended to allow children to work independently and responsibly. She replaced the classroom's tables, chairs and cabinets with child-size furniture including small washstands. Materials were stored in cabinets low enough for children to access them and put them back when they were finished.

Results

Children taught themselves while the teacher watched and provided materials in activities such as growing plants, caring for pets, preparing and serving meals and gymnastics.

What the critics said

Critics objected to the lack of discipline to which Maria responded: "A room in which all the children move about usefully, intelligently, and voluntarily, without committing

any rough or rude act, would seem to me a classroom very well disciplined indeed." Children who continually misbehaved were expelled, but these were few in number. Maria regularly conferred with parents about each child's progress.

Three months later

Next, Maria opened her second school in another tenement. Educators, journalists and royalty all visited the schools. When Italy's queen visited the school, the children greeted her politely and then quickly returned to their activities.

How about reading and writing

Maria knew that first-graders in public schools started to learn reading and writing, so she started at the same time so results could be compared. By Christmas of 1907 when first-graders in the public school were still practicing penmanship to prepare them to learn to write, Montessori four-year-olds were writing.

How did she do it?

Maria's children were allowed to manipulate cardboard and wooden letters just as she had done with handicapped children. She opened three more schools in 1908, and in 1909 wrote her first book, The Montessori Method which concluded with: "Our children are noticeably different from those others who have grown up within the gray walls of the common schools. Our little pupils have the serene and happy aspect and the frank and open friendliness of (people) who feel (themselves) to be the master of (their) own actions."

In 1912, Mabel Hubbard Bell, the wife of Alexander Graham Bell and Margaret Wilson, daughter of President Woodrow Wilson formed the American Montessori Association. By the next year, there were nearly one hundred Montessori schools in the USA and now thousands of schools throughout the world.

About teacher training

Maria later wrote, "The teacher's task is not to talk, but to prepare and arrange a series of motives for cultural activity in a special environment made for the child...The most urgent task facing educators is to come to know this unknown child and to free it from all entanglements."

Maria was the first to advocate that "less is more" because she observed that..."the environment itself will teach the children, if every error they make is (obvious to them), without the intervention of a parent or teacher, who should remain a quiet observer of all that happens."

Another radical thought about teaching

Dr. Montessori gave this advice to new teachers: "The most difficult thing to make clear (to the new teacher) is that because the child progresses, (the teacher) must restrain herself and avoid giving directions,...; all her faith must repose in the child's latent powers."

Then Maria was even more pointed with this comment: "We must, therefore, quit our roles as jailers (in a prestigious jail called the classroom) and instead take care to prepare an environment in which we do as little as possible to exhaust the child with our surveillance and instruction."

But, how to do this?

"Respect all the reasonable forms of activity in which the child engages and try to understand them... The child is much more spiritually elevated than is usually supposed. The child often suffers, not from too much work, but from work that is unworthy of the child."

The results

When 6 and 7 year-old students in public school were just starting to grasp reading and writing, Maria Montessori's 3

and 4 year olds were already reading and writing. She said, "...Sometimes very small children in a proper environment develop a skill and exactness in their work that can only surprise us." Her most poignant remark: "Education should no longer be mostly imparting knowledge, but must take a new path, seeking the release of human potentialities."

The climax of the Montessori story

Dr. Maria Montessori was nominated three times for the Nobel Prize. Her work spread to six continents and throughout the United States.

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