

Montessori Approach to Teaching/Learning and Use of Didactic Materials

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by

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Abstract

This research paper has a dual role. First, it is a brief look at some of the key components of the Montessori Method. The focus here is on the following: prepared environment, freedom in education, movement education, sensory education and music, and intellectual education.

Second, it is an attempt to place some of the key points of the Montessori Method into a context of world issues, general education, and finally, special education.

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Montessori schools were started over a century ago in Rome, Italy. Today, they can be found in many countries around the world including Canada and the USA. The method of education used in these schools is named after its inventor, Dr. Maria Montessori, Italy's first female doctor of medicine. Dr. Montessori's keen interest in children's health and in pedagogy prompted her to observe little children. In 1906, when given the opportunity, she started an experimental school in the slum areas of Rome (Scheerenberger, 1983).

While treating mentally ill patients in an asylum, Dr. Montessori became interested in the "defective" children who were in the asylum with the mentally ill patients. Her work with the "defective" children brought her great success. The children who were labelled as "unteachable" were taught reading and mathematics by Dr. Montessori. She also had these children tested along-side the "normal" children. To everyone's surprise, the "defective" children's scores were as high as or higher than the scores of the "normal" children. After seeing the results of her method of teaching on the "defective" children, Maria Montessori wanted to test her method of teaching/learning on "normal" children (Montessori, 1912).

In 1906 Maria Montessori opened her first school or as she called it, "Children's House", in a housing complex in the poorest area of Rome. The children belonged to poor families where both parents had to work and had no one to care for the children. Most of the children were between the ages of 3 and 6 years old. This first "Children's House" was the seed of the Montessori Method of teaching/learning. In there, Dr. Montessori observed the children carefully as any scientist would while conducting scientific observations. She wrote detailed notes describing the activities and the discoveries of the 30 little children. Maria Montessori based some of her ideas on the writings of earlier educators such as Itard and Seguin, and improved upon them. For example, she designed didactic materials (self-correcting learning objects),

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observed the children using them, and then, redesigned the didactic materials according to the children's needs. Maria Montessori created a scientific laboratory for the study of learning. She observed children in order to be able to teach them better. Her method of teaching was truly child-centered.

Montessori Method

“The Montessori Method is a spontaneous, expansive educational system designed to afford the child liberty to move and act in a prepared environment encouraging self-development” (Orem, 1965, p. 13). Orem's statement sums up the essence of the Montessori Method of teaching/learning. In her Method, Dr. Montessori does not have the teacher as the centre of attention, nor does she have a prescribed curriculum, rather according to her beliefs the child himself/herself must be the center of education.

Dr. Montessori (1972) stated that in order for the child to develop two factors must be present. One factor is a prepared environment that looks after the child's physical health as well as the spiritual life. The second factor is the ability of the child to move freely in his/her environment where there can be found constructive activities for the child's development. These two factors allow the child to learn and enjoy more fully such things as: movement in education, sensory education and music, and intellectual education. She also stated that the child needs an adult who is to give him/her guidance with his/her work and who will take into account the child's needs. Dr. Montessori further stated that in such an environment the child works very hard, is observant and is not destructive.

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Prepared Environment

Human beings are continuously reshaping the environment they live in, in order to make their surroundings more practical for their work, or better suited for relaxation. In other words, the environment is changed in order to look after specific physical or spiritual needs that humans have. But is the same environment equally good for all human beings? Dr. Maria Montessori (1966) stated that “[a]n adult environment is not a suitable environment for children” (p. 109). She believed that little children should not have to live in an adult environment, instead, there should be an environment specially prepared for them. Montessori (1912) stated that in order for children to develop properly it is necessary to reduce all obstacles around them to a minimum. This included creating the right environment for children indoors and outdoors.

In order to get a clearer understanding of what Dr. Montessori meant by a prepared environment, we need to examine the schoolhouse or “Children’s House” which she taught in. For example, the office sized furniture pieces originally placed in the schoolhouse were too big and too heavy for the little children. The children could not reach the high shelves nor could they move the large chairs. Dr. Montessori designed and had manufactured little furniture such as chairs, tables, washstands and cupboards that preschool children could use easily. Hooks on the walls were placed low so that children could reach them without any assistance from adults. The small chairs were light enough for a child to lift and carry to another location. Today, we can find these small pieces of furniture in all preschools and in many homes where little children live.

In the Montessori environment Orem (1965) stated, the furniture fits the child because it is small just like the child. The educational décor is simple yet attractive. In Montessori schoolhouses simple pictures hang on the walls above the shelves where the learning tools are

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placed. Dr. Montessori kept the objects in the “Children’s House” organized; there was a place for everything. Everything was marked (a simple outline of the object was drawn directly under the object) so the children could easily put away every tool they used. In the “Children’s House” there were different types of workspaces such as: a chair by a small table or a carpeted floor. Everything was designed so it would be the best for the child.

The outdoors of the “Children’s House” was also carefully designed. For the outdoors Dr. Montessori designed playgrounds and gardens with varieties of trees and flowers. There were pathways for children to take walks, small benches to sit on, and objects such as hoops to play with. Originally a medical doctor, Maria Montessori, took great considerations for the child’s physical as well as mental development. Children still benefit from these ideas today.

Dr. Montessori advocated that children need to spend a lot of time outdoors. She believed that children need to learn to be in harmony with nature because ultimately, human beings rely on nature. She wanted children to learn to respect the environment, both natural and man-made. This sense of dependence between man and the environment is further stressed by her statement, “There is a constant interaction between the individual and his surroundings. The use of things shapes man, and man shapes things. This reciprocal shaping is a manifestation of man’s love for his surroundings” (Montessori, 1972, p. 67).

Freedom in Education

Freedom to Maria Montessori (1966) does not mean that we leave a child on his/her own to do whatever he/she wishes to do: rather it means that we need to remove all obstacles which might hinder the child’s “normal” development. In a Montessori environment the adult does not dictate to the child what activity he/she should do but freedom means that the child is free to choose an activity within a prepared environment. It also means that the child is free to choose a

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place where to perform the work within that prepared environment. When children worked in the “Children’s House” they had a choice as to sit for example, on a chair by a small table or use carpeted floor for their work space. The adult in the Montessori environment does not schedule changes in activities for the child but gives freedom to the child to be able to work on the activity until its completion regardless of the time it takes, as well to repeat the activity as many times as the child finds it necessary. Freedom in a Montessori environment also means for a child to freely walk around and get a new activity when he/she so desires, and “greatest” of all, it means freedom to observe another child and learn by observing.

Freedom in education for Montessori was very important since the child needed to develop into a fully grown human and be able to take his/her place in society. As she so eloquently wrote, “Education must foster both the development of individuality and that of society. Society cannot develop unless the individual develops, as we learn from observing. Most of our actions would have no reason for being if there were no other people around us, and we do most of the things we do because we live in association with others” (Montessori, 1972, p. 65).

Movement in Education

Movement in education was important for Dr. Montessori. It was to be done indoors as well as outdoors. Indoors, Dr. Montessori taught children to walk gracefully without bumping into any objects. She taught them to walk and march. For one of the indoor activities Maria Montessori constructed out of paper a set of circular tracks. She had the children walk in a circle trying not to step outside of the tracks.

Dr. Montessori believed that children should play outdoors so that they could be kept healthy and grow. She wrote that children need to be active so that their bones and muscles develop. For example, she recommended free games where children would play “with balls,

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hoops, bean bags and kites” (Montessori, 1966, p.144). She also recommended other educational gymnastics which included gardening and taking “care of plants and animals (watering and pruning the plants, carrying the grain to the chickens, etc.)” (p. 144). Dr. Montessori believed that exercise was important not only for children but everyone. She stated that “[e]very individual should take sufficient exercise to keep his muscles in a healthy state” (Montessori, 1966, p. 97).

The children in the Montessori schools also learned to look after themselves and thus be more independent of adults. For example, little children learned to undress and dress themselves. They hung their outdoor garments on hooks which were placed on the wall within their reach. The small washstands were also within the children’s reach so they could wash their hands, and comb their hair.

Dr Montessori believed that hands are of special importance to human beings. Since a child “develops himself through his movements, through the work of his hands, he has need of objects with which he can work that provide motivation for his activity” (1966, p.82). Maria Montessori did not make use of toys for teaching purposes; learning in the Children’s House was with genuine utensils. She believed that using genuine utensils and objects purposefully designed for learning was the child’s work through which he/she developed into an adult.

Dr. Montessori developed many educational activities and tools for the little children to use. For example she had fabric with buttons fastened on one side and button holes on the other side so that the little children could practice buttoning. All the teaching was done through action, not words. She also designed a variety of didactic materials for the children to work with and get themselves prepared for writing and arithmetic.

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Sensory Education and Music

Dr. Montessori believed that all senses should be trained and utilized. She designed a variety of activities for each of the senses. In order to develop fine sensitivity in their fingertips she had the children touch a variety of materials such as linen, cotton, velvet, and silk. Then, she would have them recognize the type of material with their eyes closed, or blind folded.

Using another activity Dr. Montessori was teaching the children train their eyes to recognize not only the basic colours but a variety of shades of each colour. For example, she would have two identical sets of cloth. She would place 5 shades of red cloth side by side from darkest to lightest. Later, she would mix up the second set of cloth and ask a child to match the shades to the first set.

In order to teach the little children to distinguish between silence and sound (or noise), Maria Montessori taught the children to recognize silence. In order to achieve this, she had the children sit all facing the same direction and she sat behind them. Then, she asked the children to listen very carefully so they could recognize their name being called. When all the children were listening attentively, Dr. Montessori quietly whispered a child's name. When the child heard his/her name being called, he/she turned around.

For teaching music Dr. Montessori wanted the children to listen to the sounds. She had two sets of bells one lined up in order according to the musical scale, the other set was in a mixed up order. The children would pick up each bell from the first set, ring it and listen carefully. They would have then tried to match up the second set to the first one. Once the children were able to line up the bells in order, Dr. Montessori would teach the children to read music. She would place a large paper with the musical scale above the bells, and have the name of each musical note written right under it.

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Ward (1913) wrote that Montessori believed that the senses needed to be exercised in childhood because “if this period is allowed to slip by without such experiences, later life is impoverished” (p.56).

Intellectual Education

Dr. Montessori (1966) described teaching little children to write by first letting them touch the letters made of wood with their index finger of the right hand, then with two fingers (index and the middle finger, and on the third occasion having them touch the letters “with a wooden rod held like a pen in writing” (p.250). This muscular exercise was a preparation for writing but through it they also learned to recognize the letters of the alphabet and eventually would learn to read.

In Geography for example, children learned to recognize the shape and name of each continent by placing shapes of continents set into wooden boards. The name of each continent was written on each shape as well as on the board under the shape.

Mathematics teaching was done by rods and beads. The shortest rod was 10 cm and the others were multiples of 10, such as 20 cm, 30 cm and so on up to 100 cm which is one metre. Beads were counting numbers like 1, 2, 3 and so on. Children used the rods and beads to learn basic addition, subtraction, multiplication and division.

Geometry was an important part of the little children’s learning. They learned for example not only to recognize geometric objects such as a rectangle and a cylinder, but also to differentiate among the sizes of a rectangle or a cylinder. One of the exercises was to organize cylinders according to width size when the height was the same. The cylinders would be lined up and placed in their proper place in the holes of a long wooden board. Each cylinder would fit into one particular hole on the board. This was a self-correcting exercise so the children would rejoice

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when they got all the cylinders in their correct places. All the Montessori didactic tools were self-correcting making learning quite simple and straight forward.

Putting It Into Context

Education of children has gone through many changes prior to Dr. Maria Montessori's careful observations of little children in the "Children's House" in Rome, Italy, at the start of the 20th century. Her method of teaching/learning has since caused many more changes in the Education System here, in Canada, and in many countries around the world.

World Issues

"Men have achieved so much and could be so rich, and yet they are poor and unhappy. At this very moment everyone is asking how he can go on living. Everything is evolving, everything is changing, mankind is producing so much – indeed, too much – and it is this very excess that sometimes makes us want desperately to return to the past" (Montessori, 1972, p. 51). Although, written in the early 1970's, this is still very relevant today.

In our modern, highly technological age, in many parts of the world the prevailing issues are hunger, disease, and war. Over the course of history humans tried to solve these issues. One way humans tried to solve these issues was by fighting against the oppressors and causing uprising of the masses or revolution against the existing governments, as for example were the many revolts of the slaves against the Roman Empire almost two thousand years ago, the French revolution in 1789, and the Russian revolution in 1917. A second way humans tried to solve these issues was by peaceful overthrow, or change of existing governing bodies, such as are the elections of new governments every few years in the democratic countries in the world including

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Canada and the USA. A third way humans tried solving these major and other perhaps not so major issues was by passing laws.

All of the above mentioned ways did achieve some improvements of the human world condition but none of them completely eradicated (if it is at all possible to do) hunger, disease, and war. To make matters worse, crimes caused by hunger, disease, and war such as theft and murder are on the increase. Reports on these crimes can be read in the newspapers and heard on the radio and television news daily. Why is it that after thousands of years of human evolution, humanity still did not resolve these very significant issues? Why is there still hunger, disease, and war in many parts of the World? Why are these not conquered when humanity is at the stage of conquering outer space?

In my opinion, one major reason for the inability to conquer hunger, disease, and war is that humanity throughout history tried solving issues by trying to control forces outside of themselves. To this day, humans are eager to point a gun or at least a finger at someone or pass a law in order to control other humans' actions. An individual human is not very eager to develop self discipline; in fact many carry it to the extreme, when they mistakenly believe that lack of self discipline means freedom. As Maria Montessori pointed out true freedom comes when a human has total control of not only his muscles but all of his senses (Montessori, 1912). This implies that none of us are completely free until we master our own selves. Dr. Montessori calls our attention to observe a little child in order to witness the love of freedom manifested in a big smile which comes as a result of a lot of work and mastery of control of his/her own self (muscles and senses). A good example is a big smile on a toddler's face when after many days or perhaps weeks of trying, he/she finally succeeds in standing up even if for a very short time.

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Nature itself teaches a human to develop from an infant into an adult. If nature requires a child to work and master his senses, and if work and mastery of the senses gives such pleasure to a small child, why is it that adult humans prefer idleness over work and lack of control over their senses?

I believe that our education (formal and informal) shapes us into the adult human beings we are. There is no manual given to parents at the birth of their child outlining in detail what is necessary for bringing up a child so he/she develops into a “normal” adult who will be capable, willing and happy to live in harmony with other human beings and nature. As Dr. Montessori stated in her writings, adults must learn by observing small children; they will teach us to teach them. The reader might state: “Yes, but most adults did not learn to observe children. No one has taught us the technique.” Perhaps, it is time to teach all humans to observe little children. “Society must recognize the importance of the child as the builder of humanity and come to have profound appreciation of the psychic roots determining whether the mature adult will seek positive or negative goals” (Montessori, 1972, p. 42).

General Educational Issues

The task confronting education according to Montessori (1972) “is above all the task of mending breaches, filling in gaps that are vast and serious. Its primary goal must be the realization of the values of the human personality and the development of mankind” (p. 63). Our educational system incorporates many ideas formed by Maria Montessori. Small chairs, tables and other furniture are used in kindergartens and the primary grade classrooms. Child centered approach is generally accepted in the schools. Our teachers continuously strive to fill in gaps in the students’ knowledge base. Children are sent out for recess twice a day and have outdoor time following the lunch break. Movement education or Physical Education is a required part of the

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child's schooling. Indoors, the primary and elementary classrooms have carpet areas for reading. The learning environment is prepared for the students. As stated in the Manitoba curriculum framework of outcomes:

“The learning environment should value and respect all students' experiences and ways of thinking, so that learners are comfortable taking intellectual risks, asking questions, and posing conjectures”(Manitoba Education, Citizenship and Youth, 2008. p. 3).

Although our educational system has gone through many changes, it still lacks in many areas. For example, some students do not know how to learn and are unable to seek help. Socializing among students requires more work, and discipline is still an issue of concern. Perhaps, we may take a look at the Montessori Method of teaching/learning to offer us some help. In any case, more changes are needed to be brought about if we are to improve our educational system and through it our society. Our children are our future which everyone must recognize. As Dr. Montessori so beautifully stated,

“Intelligence, a balanced personality and the unity of all mankind as a single organism are man's wealth. What is therefore needed today is an education that will lead the human personality to recognize man's grandeur” (Montessori, 1972, p. 118).

Special Education Context

Dr. Montessori became interested in teaching children through her exposure to the “unteachable” children. Her method of teaching/learning was designed for and tested on these children and only later tried on “normal” children. Using her method of teaching/learning, Dr. Montessori proved that all children are capable of learning. Today special education is fortunate to be able to use the objects designed by Maria Montessori as well as some of her ideas used in her method of teaching/learning. Individualized Educational Programs for special education

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children are quite common today. Lessons and curriculums are adapted to the special education children's needs.

Students in these programs have special Teacher's Aids who help them better fit into the class and cope with the educational requirements. Schools have special resource rooms where special education students can get more help from a specialized Resource Teacher. This room can also serve as a place for them when they need to work outside of the regular classroom. School divisions as well as some schools also employ other special needs specialists such as a Nurse, a Guidance Counsellor, and a School Psychologist. Today, special needs students are being observed by specialists occasionally. This is a good start. Now, we need to expand on this by putting in place the two factors Dr. Montessori talked about; we need to provide for these students a prepared environment and the freedom to explore learning in that prepared environment. We need to provide them with a room filled with numerous carefully designed activities to help them learn and the freedom to choose which activity they wish to work on, when they wish to work on each activity and how long they wish to work on each activity.

Dr Montessori's work not only benefited young children in the past hundred years but it also impacted the lives of the special needs of adults and the elderly. For example a Montessori-based Dementia Program is being researched as an innovative program for helping the elderly cope with dementia (Malone and Camp, 2007).

Conclusion

Montessori Method as described above has the potential to bring about some positive changes not only to our education system but to society at large. The question then remains, if the Montessori Method offers such a potential for success why is it not used in every school

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across the world? One very simple answer is that not every educator is familiar with the Montessori Method. Those educators who are familiar with it try to use it or at least some aspects of it. As noted earlier though, there are many private schools all over the world that use Montessori Method to teach young children and adolescents. There are many other schools, institutions, and research institutes that use the Montessori-based programming for education, therapy, and research. The use of small chairs and other small furniture in kindergarten and the primary grades is widely accepted, and the child centered approach of teaching is adopted by our educational system in Canada and in most of the countries in the world. The educational materials developed by Maria Montessori are used in schools and can be found in many homes where there are children.

Our educational system is greatly influenced by Dr. Montessori's Method of education. It is true that more changes are required, but changes do not come easily even if the change is supposed to be for the better. In order for our educational system to accept and follow the Montessori Method of teaching and learning, two major issues need to be resolved: (1) It is necessary that all educators who intending to use the Montessori Method, understand it thoroughly and not just in part. (2) It is necessary that all policy makers, and not just educators, put in the work, time, and effort it requires to implement it correctly, as it was meant by its inventor, Dr. Maria Montessori, and not as each individual wishes to interpret it. Because of these two great issues the Montessori Method, although a great educational system, will take a long time to get implemented in its entirety.

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