

Full Transcript of An Introduction to Montessori Philosophy and Materials

An Introduction to Montessori Philosophy and Materials

What is the “Montessori Method”?

A good way to learn about how the Montessori philosophy works is to observe a classroom in action. On their first visit, many adults are not quite sure what is going on. The Montessori classroom environment is like nothing they have ever seen. There are children as young as three and as old as six in the same room. At times the adults in the classroom are just observing what is going on, or working with a single child. Most of the children are busy, working with various hands-on materials. They seem unusually independent, putting away materials they have finished with, and then making their own decision about what to do next.

The environment is beautiful with many colors. The materials on the shelves have an intriguing appearance and texture, just begging to be touched. The furniture is child sized. Children can easily reach the sink and the coat hooks. Two children appear to be enjoying a snack that they served themselves. Many seem unusually focused on what they are doing, sometimes repeating an activity, concentrating for long periods on what they are doing. No one seems bored. Most of the daily tasks from putting on coats to cleaning up the room are accomplished independently by the children themselves.

Other aspects of the Montessori philosophy may not be immediately obvious. There is an emphasis on cooperation and respectful behavior. The adults in the classroom speak to the children at their own level in a calm voice. If a child wants to use a material that another child is working with, they learn to wait patiently for their turn. Children are rarely interrupted if they are concentrating on an activity. The materials are carefully designed so that the children can identify when they have made an error and correct the mistake on their own.

All of the children’s senses are used in the educational process. The sense of touch... of sight... of sound... even the senses of smell and taste are stimulated.

Another unique aspect of the Montessori method is that it is international. Maria Montessori spent many years working with children in her native Italy, in India and traveling all around the world, sharing what she had learned in working with young children. Today Montessori schools and training centers can be found worldwide. Although all Montessori classrooms are different in some ways, the basic materials you find in any classroom are the same regardless of the country you might find them in.

All the materials in a Montessori classroom are organized into one of five curriculum areas:



- Practical Life
 - Sensorial
 - Language
 - Cultural
 - Math

Montessori materials are carefully sequenced so that each activity has an orderly and logical process to follow. The materials introduce concepts that increase in complexity and abstraction as the child progresses through the years. This allows children to organize their thinking and problem solving skills in a clear way, and to absorb this knowledge through their senses. As Aristotle said, "There is nothing in the intellect which was not first in the senses."

In a Montessori classroom the teacher is often referred to as a directress guide. She observes each child on a daily basis and determines when each is ready to move on to the next level of abstraction. She is not teaching the child as much as assisting the child in teaching himself by introducing new concepts as soon as he is ready, and giving him the tools to discover the knowledge on his own

Practical Life Materials

Small children have many life skills that they need to learn to achieve independence. Children develop a sense of pride when they are able to do things for themselves. In a hurried world, adults often will tie a child's shoes or zip up his coat to save time. Respecting a child's desire to be independent is a cornerstone of Montessori philosophy.

Children are given many opportunities to learn practical life skills in a Montessori classroom.

Dressing Frames

A variety of "dressing frames" are found in the early childhood classroom. These include zipper frames... button frames.... buckle frames... bow tie frames... snap frames and others. Observing a child practicing with a dressing frame is a good place to see the joy of repetition. Realizing that they are practicing a difficult small muscle skill important to day-to-day life is a powerful motivator for children. Doing each frame several times at a sitting is not uncommon.

Polishing

Shoe polishing is a task most adults would not expect to see a 3 or 4 year old engaging in, but children love the activity. Learning the basic skills of caring for yourself is the core of the practical life curriculum. As a child progresses through the practical life activities, she will also learn to polish beautiful silver objects, mirrors, brass or wood.

Hand Washing

The hand washing activity follows a logical sequence that includes getting the water... wetting the hands... soaping... washing... rinsing... nail cleaning... drying and cleaning up. Small children love working with water.

Spooning and Pouring Activities

Many practical life activities challenge the children to control their small hand muscles to complete delicate tasks such as spooning peas from one container to another, learning to pour rice from one pitcher to another and back, to pouring water from a variety of containers with progressively smaller openings. Making a mess is no problem, because the children have the skills to clean up their own spills.

Sweeping

Caring for the environment is the responsibility of every child. Learning to sweep and use a dust pan... wash a table... dust... water plants and even arrange flowers are all common practical life activities.

Walking on the Line

All early childhood classrooms have a line laid out on the floor in an elliptical or circular pattern. The line is used to define the area for children to sit during daily gatherings of the whole class. Children may also use the line for gross motor activities, learning to control their bodies as they walk around the room carefully following the line.

Control of Movement

Montessori classrooms offer children many opportunities to learn to control the movement of their body as well as other objects in the classroom. For example, it is expected that a chair should be placed under the table when a child leaves her seat. When working on the floor, one or more mats are used to define the workspace.

Nurturing Independence

Nurturing independence is at the core of the Practical Life curriculum. Children who are struggling to accomplish a task are given the time and space to do it themselves. If they need help, they are given only the assistance they need to complete the task on their own. For example, if a child cannot open a container, the assistant opens it just enough so that the child can complete the task on her own.

Sensorial Activities



Maria Montessori was one of the first educators to recognize that children learn best when they are engaged in hands-on activities. However, she felt it was also important to get children to be adept at using all their senses to learn. She believed that children need to move freely in their environment and to investigate whatever interests them. For these reasons, Montessori insisted that the classroom be beautiful. Through years of observation she was able to develop a curriculum that appealed to all of a child's senses. Any child who has learned math in a Montessori classroom knows the difference between 1000 and 100 because they have seen the difference and felt it in their hands many times. They have learned to identify objects solely through their sense of touch. They have learned to identify different odors and sounds using a variety of materials.

Knobbed Cylinders

A familiar sight in any Montessori early childhood classroom is the knobbed cylinders. There are four different sets of knobbed cylinders, each varying in dimensional characteristics. The child learns to discern between subtle variations in width, breadth, depth and height by removing the cylinders and replacing them in the proper slots. This activity provides a clear example of the concept of control of error. If the child places any cylinder in the wrong slot, it will be impossible to complete the task without correcting his mistake. The knobs require small muscle coordination similar to the skill of holding a pencil.

Pink Tower

Ten pink cubes which range from a large cube to a very small cube make up the pink tower. Children learn to see and feel the concept of decreasing size in three dimensions. Often a child will experiment with alternate ways to assemble this work.

The Brown Stair and the Red Rods

Similar in concept to the pink tower, the brown stair and the red rods, demonstrate more sophisticated concepts of size and dimension. The red rods require the child to align one end of each rod to see how each rod increases in size. Here the child begins to see the concept of unit measurement as each rod increases by the length of the smallest rod.

Color Boxes 1 –2 –3

The color boxes progressively develop a child's sense of color and color relationships. The first color box includes three matching pairs of primary colored tablets to introduce the concept of the primary colors and their names.

The color box 2 includes 22 color tablets, which can be mixed and matched to develop an understanding of color. All the primary colors and secondary colors are included as well as brown, pink, gray, black and white.

Color box 3 introduces the concept of different hues of each color. The challenge is to arrange the tablets in the order of increasing darkness or lightness.

Knobless Cylinders

Like the knobbed cylinders, the knobless cylinders challenge the child to differentiate objects of increasing dimension. Four sets of knobless cylinders provide the child with different dimensions to evaluate. These cylinders are more challenging and abstract than the knobbed cylinders. The control of error is reduced since the child does not have individual slots to insert each cylinder. He must determine the correct pattern solely through comparison.

Geometric Cabinet

The Montessori curriculum introduces geometry to children through the identification of increasingly abstract geometric shapes. Beginning with a set of circles, the child learns the circle shape through removing knobbed circles of various sizes and replacing them in the correct slot. As the child masters each shape, she moves on to the next level of abstraction. Drawer 2 includes six rectangles. Drawer 3 includes six triangles. Drawer 4 offers a greater level of abstraction by introducing the polygons from the pentagon to the decagon. Drawer 5 introduces the ellipse, the curvilinear triangle, the quatrefoil and the oval and drawer 6 covers the quadrilaterals including the rhombus, the parallelogram, the trapezoid and the right angled trapezoid. Many adults are amazed that small children can learn the names of complex geometric figures but children really enjoy the challenge of big words. Mom and dad are often amazed when a child comes home talking about a right angled trapezoid!

Constructive Triangles

Five sets of triangles increase the abstraction of learning about geometric shapes. Color coded sets of triangles include black lines indicating the side that needs to be matched to create a new geometric shape. This control of error allows the child to create new shapes on her own in a meaningful way. As sensorial materials become more abstract, the child learns through his eyes and hands geometric concepts that he will need to understand many years into the future. The Montessori curriculum gives every child a concrete understanding of these important mathematical relationships.

Superimposed Geometric Figures

Using geometric figures that are now familiar, the child learns the concepts of tangent, concentric, aligned and inscribed.

Binomial Cube

The binomial cube introduces in a simple geometric set of blocks, the algebraic equation $(a+b)^2$. Although children are not yet ready to learn algebraic equations, they can see through this set of three dimensional blocks what happens when this equation is solved. Although this activity is much more abstract and complex than some of the earlier activities, it too has a color coded control of error to allow the child to correct her own mistakes in assembling the cube.

Sound Cylinders

Building auditory skills is an integral part of the Montessori curriculum. The sound cylinders come in two sets of six hollow cylinders that are color coded blue and red. The child chooses a blue cylinder and tries to match the sound it makes with one of the red cylinders. The materials inside the cylinders are chosen to make louder or softer noises when shaken. By using the sound cylinders, children learn to distinguish subtle changes in volume.

Bells

Two sets of bells, one mounted together for control of error and the other on individual stands are used by the student to learn the diatonic scale from middle C to high C. The child is free to experiment with the bells to make his own music or to ponder the relationships between the notes. Bells are also available for the student representing the sharps and flats of the chromatic scale. The bells are struck with a striker and muted with a damper.

Touch Materials

A variety of materials are available that stimulate the sense of touch. These include the touch boards that show the child the difference between rough and smooth. Children also play blindfold games to learn to identify objects solely by their sense of touch.

Tasting Jars

Two sets of dropper bottles are used to teach the four basic taste senses: salty, sweet, bitter and sour.

Smelling Bottles



In a similar manner as the tasting jars, children are given the opportunity to compare and match the odors of two sets of smelling bottles.

Language Activities

Young children have a natural ability to learn language skills that diminishes as they grow older. Emphasis is placed on learning the sounds each letter makes rather than the alphabet. Throughout the curriculum, children are developing the small motor skills they will need to be a successful writer and the auditory and visual tracking skills necessary for learning to read.

Language Cards and Sound Games

Objects and images are used to begin the association between beginning sounds and names. The child learns that snake begins with a ssssss sound, that horse begins with a hhhh sound, or that dog begins with a ddd sound and so on.

Sandpaper Letters/Sand Tray

Once children are familiar with the basic sounds, they are ready to begin working with sandpaper letters. Tracing the sandpaper letter

with her index and middle finger, this girl learns to draw the letter. As they become comfortable with the sandpaper letters they can practice their letter writing skills in a tray of sand. The tactile experience of drawing letters and then erasing them with a simple shake of the tray is really fun for small children.

Small Metal Insets

Although tracing small insets on paper can build a child's understanding of the concept of portions and of geometric shapes the primary purpose of this activity is to provide practice in pencil handling skills. As the insets get smaller, the child's skill increases. This activity gradually prepares a child for the complex task of writing letters.

Handwriting Practice

Progressively more difficult writing challenges are provided to each child as they become ready. The directress observes each child and introduces new activities when he is ready. Writing with chalk on an unlined chalkboard is followed by practice with writing on a lined chalkboard. Once that skill is mastered, writing with a pencil on paper is introduced. Pre-school Montessori students often learn to write sentences and even short stories.

Reading Activities



Learning to read short words is introduced with small objects the child can hold in her hand, and is introduced once the child is comfortable with the beginning letter sounds. Later the word challenges become more abstract and include image cards of familiar objects.

Phonograms

In order to learn how the written language works, a child needs to learn common letter combinations that make certain sounds. The English language contains 96 of these phonograms. At some point in the process of learning the mechanics of writing letters, learning beginning letters sounds, practicing phonograms and other language activities, the child has what Montessori called a “magic moment.” Suddenly, the skills come together in the child’s mind and she begins to read words on her own. This is an exhilarating moment for the child as the world of reading suddenly seems within reach. Montessori students often tell people that they taught themselves to read. Indeed, they practiced and learned most of the necessary skills on their own.

Grammar Symbols

As children build their vocabulary, they begin to sense that there are different functions that words play. Montessori developed grammar symbols to assist children in learning the parts of speech. Practicing creating sentences using grammar symbols helps children absorb the structure of language. A black triangle represents the solid concept of a noun. Adjectives are small dark blue triangles because an adjective is used to describe a noun. A red ball represents a verb. The color red and the ball shape were chosen to remind the child that a verb is a word that communicates action. A conjunction is a small pink rectangle to communicate a connection between words.

Cultural Activities (History and Geography)

All cultural materials are connected and integrated using a timeline of life. Showing children how life as we know it came into being and how it is all interconnected, builds a deeper respect for life and for the importance of being responsible stewards of these gifts. In Montessori terms this is called “Cosmic Education.”

Geography

As you become more familiar with Montessori materials, you begin to see the elegant philosophy behind how each activity works to build the child’s understanding of the world around her. In the cultural activities, the maps may be covered with sandpaper to enhance the tactile experience of exploring maps. Again, as the child becomes more sophisticated, he will begin to work with puzzle maps. Matching and tracing activities continue to build the child’s ability to



identify and name individual states, countries within continents and continents within a world map. Although the map tracing activities are building writing and vocabulary skills, they are also developing the child's abstract understanding of the world around him.

Flags

The names and flags of countries provides small children with a way to learn writing skills as they practice drawing and labeling the flags of countries from around the world. The opportunity to spend time drawing a colorful flag is intriguing to children. As they enjoy drawing the elements of a flag, they begin to become familiar with the country that the flag represents. They also match the flags with the puzzle maps.

Clocks and Time

Clock activities introduce children to the concept of time. They begin with the hour hand and move logically through smaller divisions of time. Part of the task of learning about time is differentiating the concepts of past, present and future. Chart activities build the child's sense of how language communicates time as well. Verb tenses are organized to indicate past present and future tenses. Terms that indicate change such as baby, boy, man further build the child's abstract understanding of time.

Timelines

From the age of 3 through high school, the Montessori curriculum uses the concept of a timeline to help children organize historical information. In the pre-school classroom, the concept of a timeline is first introduced as a way to describe the child's own life. Next the child may build a family timeline. A pre-history timeline is used to assist the child in picturing very long periods of time and the major changes that society, culture and natural history have gone through.

Math Activities

At this point you are beginning to become familiar with the way Montessori uses beautiful materials to communicate increasingly abstract concepts. Most adults who were taught in traditional educational settings, are fascinated by the power of the Montessori math curriculum. Giving the child the opportunity to see and feel the concept of one bead, ten beads, a hundred beads – even a thousand beads, lays a foundation for a rich understanding of mathematics. As the child becomes more comfortable with each material, the concept of numbers becomes more and more abstract. Like the language curriculum, when the abstract symbols of numbers are introduced, the child has a deep understanding of what each symbol represents.

Number Rods

Identical to the red rods in size and shape, the number rods add alternating colors of red and blue to further develop the concept of units and of the difference between even and odd. As the child becomes comfortable laying out the number rods, she can begin to associate a sandpaper number with each rod. Like the sandpaper letters, the use of a rough surface enhances the child's sensory focus on the activity of tracing out the number.

Spindle Box

Smooth wooden spindles are used to practice counting skills from 0-9. Once the child gets to two or more spindles, she binds them together in a bundle with a rubber band. The small muscles skill required to wrap a rubber band around each bundle is a challenge for a small child. In observing children, it is clear that children love being challenged in ways that are appropriate for their age and abilities.

Cards and Counters

Once a child becomes proficient in her understanding of counting to ten, she can move on to the cards and counters. Laying out the counters to match the number cards confirms that the child understands the order of the numbers and can accurately represent the quantity with the counters. This activity also graphically emphasizes the concept of odd and even. Odd numbers always have a single counter left at the bottom. If the child is short a counter or has too many he knows that an error has been made and needs to be corrected.

Golden Beads-Decimal System

Golden and color coded beads are the basis of many of the Montessori math materials. At first the beads are used to match visual representations of large numbers with number cards. As he becomes ready to move on to more abstract activities, he learns to add and subtract and even multiply and divide through the use of these hands on materials. Color coded cards reinforce the concept of place value. These cards can be stacked together to create any number up to 9999. Like the red rods that introduced the concept of units, the cards can be stacked to communicate the concept of place value.

Stamp Game

The stamp game moves these mathematical concepts to a higher level of abstraction to practice more difficult math problems. Instead of a hundred beads, a color coded red stamp is used. The beauty of the Montessori philosophy is that when the directress observes that the child is ready to move on to this level of abstraction, she is confident that he has the knowledge of what the number 100

means. He has held one hundred in his hand many times and added, subtracted, multiplied and divided 100 to solve many mathematical problems.

Metal Insets

The concept of various fractions is introduced using specially designed metal insets. The abstract meaning of $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and so on becomes easy for any child to grasp.

These basic materials are organized in many ways to build a child's understanding of mathematics. If the child has a particular talent in math, she might move on to more difficult abstract materials such as the large bead frame that introduces numbers up to seven digits. Many of these materials along with a progression of higher order materials are also present in the elementary curriculum. Here two eleven year olds are solving a cube root problem using three dimensional Montessori materials.

Montessori educators are specifically trained in the science of observation of children. Without the directress' guidance, the classroom would be no more than a day care center with interesting looking toys. With that guidance each child is continually challenged and encouraged to learn. It is for this reason that Montessorians prefer to refer to the teacher as a directress or guide. The goal is to entice the child with beautiful materials that beg to be used, to present these materials it is observed that the child is ready, and to design the materials so that the child can learn their lesson independently with minimal assistance. This philosophy of education has been tested and revised for almost a century. Through the skillful implementation of the Montessori method, children are nurtured emotionally, physically and intellectually. All children have a natural love of learning. The Montessori classroom nurtures that love of learning and gives each child the confidence to take on the many challenges that life presents to him.