

## **The Montessori Pedagogy: A Multi-Sensory Approach to Childhood Education**

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### **Abstract**

Montessori is an activity-oriented, self-directed, age-appropriate, fun, and hands-on learning method. It is an educational approach in which children make creative choices in their learning, discover things for themselves, and are productive workers. At the same time, the classroom teachers offer appropriate guides to the children in the learning process as facilitators of learning. This educational method facilitates children's creative abilities and self-expression, making learning permanent. This is because Maria Montessori believed that education should prepare children for all-around development (physically, mentally, emotionally, and socially) by allowing them to engage in age-appropriate activities and skills and passionately explore the rich learning environment independently based on their background and mental abilities. These will help them satisfy their developmental and learning needs, thereby promoting their natural growth and learning.

Keywords: Montessori, Multi-sensory Approach, Early Childhood Education, Pedagogy

### **INTRODUCTION**

The Montessori educational method was initiated by Dr. Maria Montessori, specifically for children with learning and developmental disabilities to facilitate meaningful learning in them. She further adapted this learning pedagogy for children with normal cognition and development, enhancing their learning (Marshall, 2017). Montessori education is a child-centered method based on scientific observations; it is designed for children's meaningful and effective learning in early childhood education. It is a practically oriented educational approach that develops in the pupils the zeal to independently explore and manipulate learning tools at their own pace, in their own way, and learn naturally, pursuing areas of study of their interest (Lillard, 2019). It is designed to take full advantage of the children's desire to learn and engage in self-discovering activities, direct their learning, and naturally explore knowledge by manipulating learning materials. At the same time, the specialist teachers offer age-appropriate activities to guide the process (Dahunsi, 2014). It is multi-sensory in nature, involving practically the use of different parts of the human sense organs, which are the learning pathways to the brain that make learning meaningful and productive for pupils. These learning pathways include The eyes (Visual), the ears (Auditory), the mouth (Oral speech), and the hands (Kinaesthetic). Pupils simultaneously engage in the above pathways in multi-sensory learning and passionate inquiry, exploring knowledge and manipulating their learning materials (Saha & Adhisari, 2023b). Each pupil follows their own curiosity at their own pace, taking the time to understand each concept and fully meet individualized learning goals. This educational

approach allows early childhood learners to learn in structured classrooms by creating a well-planned and beautifully crafted environment with self-directing learning materials designed to meet children's age-appropriate needs, thereby enhancing their total development (Maren, 2019). Hence, a Montessori classroom is designed explicitly for experiential learning, enabling the children to better understand Language, Mathematics, Science, Music, Social interaction, and much more. Thus, children work individually or in groups to explore knowledge of the world and develop their maximum potential. This is because Maria Montessori sees children as naturally eager for knowledge and capable of initiating learning in a supportive and thoughtfully prepared learning environment. In the same vein, it is an educational approach that values the human spirit of teamwork by engaging early childhood pupils in group work through which they learn tolerance, patience, and discipline and develop their intelligence and physical and psychological abilities. Additionally, this educational approach is characterized by independence, freedom within limits, and respect for children's natural learning; these make them competent, responsible, and respectful citizens with an understanding and appreciation that learning is for life (Casquejo, 2019).

Joyce (2017) opined that Montessori education is a multi-sensory approach to early childhood education based on the following reasons:

1. It engages children in multi-sensory activities that stimulate more than one sense, fully engaging them in the learning process (such as the sense of touch, sound, sight, smell, and taste).
2. It recognizes that each child has a unique way of taking in information, whether visually, auditory or through hands-on experiences.
3. It uses music and other activities to develop cognitive skills in children, such as thinking, learning, reading, remembering, reasoning, and concentrating.
4. Children learn through repetition, so songs and exercises are repeated several times before moving on to new materials.
5. Children are encouraged to echo short musical phrases and follow instructions, improving listening skills and the ability to follow oral instructions.
6. Music\Rhythm and movement are used to develop self-esteem in children.

Thus, body awareness, balance, compassion, respect, sharing skills, gross-motor control, fine-motor control, problem-solving, work ethics, and the ability to think creatively can be enhanced using rhythm and movement in children

## **DISCUSSION**

### **Characteristics of Montessori Education**

The characteristics of Montessori education as a multi-sensory approach to early childhood learners, according to Lilard (2017) include:

1. Each child is valued as a unique individual. Montessori education recognizes that children learn differently and accommodates all learning styles. Pupils are also free to learn at their own pace, each advancing through the curriculum as he is ready and guided by the teacher on an individualized learning plan.
2. Montessori education recognizes and develops the pupils' order, coordination, concentration, and independence as children begin the program early. Thus, the classroom arrangement, materials, and daily routines are designed to support the individual pupil's ability to educate oneself and think about what one is learning from toddlerhood through adolescence.
3. It recognizes pupils as part of a close, loving, and caring community. The multi-age classroom (typically spanning 3 years) re-creates a family structure where older pupils serve as mentors and role models to younger pupils. This also makes the younger pupils feel supported and confident about the challenges ahead. The teachers also model respect and loving kindness and believe in peaceful conflict resolution.
4. It acknowledges that pupils enjoy freedom within limits. In Montessori education, pupils work within parameters set by their teacher. They are active participants in deciding what their focus of learning will be. Teachers in Montessori classrooms understand that internal satisfaction drives the child's curiosity and interest, resulting in sustainable, joyous learning over a lifetime.
5. It recognizes that pupils should be supported in becoming active seekers of knowledge. Thus, Montessori teachers provide environments where pupils have the freedom and the tools to pursue answers to their questions.
6. It acknowledges that pupils' self-correction and self-assessment are integral parts of the Montessori classroom approach. In the Montessori educational approach, as pupils mature, they learn to look critically at their work and become adept at recognizing, correcting, and learning from their errors.

### **The Philosophy of Montessori Education**

According to Watson & Watson (2016), the Montessori education system is based on the philosophy of child development and the rationale for guiding such growth. It's a philosophy that emphasizes the developmental needs of children, the need for freedom within limits, and a

carefully prepared environment that guarantees exposure to materials and experience. In the Montessori philosophy, reality is imperative, and emphasis is placed on learning real-life and practical skills. The teacher plays the role of a passive instructor, avoiding interaction unless asked by the child, and there is the indirect approach to teaching where the foundation of teaching is merely laid, and children are allowed to initiate their own exploration and learning. Guiding principles integrated into Montessori educational philosophy are:

**Respect:** Montessori educational approach profoundly respect children and the developmental powers that drive them to seek certain experiences. It reframes the adult/child relationship to place the child at the center of his own learning. In Montessori classrooms, teachers respect children as separate and unique individuals. They guide children to respect the people and objects in their environment and, as the child grows older, to respect and understand the connection between all living and non-living things, leading to the adolescent's profound awareness of the complex web of human existence.

**Prepared environment:** Children's needs change as they move through stages of development. At each level of Montessori education, the difference in developmental needs is honoured through the preparation of the classroom environment. The environment is prepared in every way for optimal development: physically, cognitively, socially and emotionally by aligning the activities in the environment with what each child needs at any moment. These prepared environments liberate children's energy for growth and learning. In Montessori classroom learning materials and toys are designed and placed in many places for children to learn and play in many ways: by themselves, in pairs, in small groups, in large groups, inside, outside, at tables, on the floor. All items in the environment are scaled to the child's size, including furniture, shelves, utensils, dishware, cleaning implements and the Montessori materials themselves. There is no focal centre to the classroom; this reflects that the teacher is not the focus of the children's attention, but that they are all one community together. Bright and attractive colours, natural materials, fascinating cultural objects and interesting pictures on the wall all offer the children complex sensory and intellectual experiences. In Montessori classrooms, children regulate their own social interactions through fun, role-playing activities and appropriate modeling while the teacher demonstrates the best way to respond to arguments or new situations. This gives the child the ability to act confidently and pro-socially when the actual problem arises, making the class a self-regulating classroom in which the children mostly resolve natural social tensions. Children are given an opportunity to engage in outdoor activities which are very important in Montessori curriculum and offer children opportunities to engage with the natural world.

**Hand-on learning:** In the Montessori educational approach, hands-on exploration is not only encouraged but necessary. When the child uses the mind, the body, and the senses, learning becomes an activity that engages the whole self. Montessori educational approach creates interactive classroom environments that follow children's natural inclination towards activity by offering an appropriate variety of objects and activities for meaningful engagement.

**Discovery:** In Montessori educational approach children are given the experience of discovering the answer for themselves. This leads to a much deeper learning experience and creates a lifelong love of learning as a self-directed process of problem-solving and discovery.

**Montessori-specialist teacher:** Montessori educational curriculum can only be implemented by specialist teachers of Montessori education. The specialist teachers of Montessori link the children to activities and experiences in the prepared environment. Specialized training results in a deep knowledge of child development, the purposes and use of each activity, and an understanding of fostering and maintaining social harmony in the classroom.

**Imagination:** Montessori educational curriculum is designed to facilitate the development of imagination and creativity in children at every stage of learning. The open-ended activities allow children to explore new ideas and relationships, providing a foundation for self-expression and innovation. In the early years (Toddlerhood: 2-3years) the building blocks of imagination are firmly established through sensory exploration of the world, launching both imagination and creative self-expression. Montessori clearly valued imagination highly—indeed imagination is the basis of the Montessori curriculum for the elementary classroom. However, she maintained that truth underpins all great acts of imagination and, thus, that young children should be told the truth.

**Freedom within limits:** Montessori educational approach is based on children's freedom within limit. Thus, during the curriculum implementation process children are allowed freedom of choice within clear, firm and reasonable boundaries and they act in positive ways that further their development. Freedom is frequently misunderstood, and many people take it to mean that children can do whatever they want. Montessori believed that freedom without boundaries was abandonment. In Montessori classrooms, expectations are clear, and children experience the natural and logical consequences of their choices. This freedom within limits allows for the natural development of self-regulation within the society of the classroom and mirroring behaviours expected by society in general.

**Independence:** From the moment of birth onwards, human beings strive towards independence. Children feel this need very strongly; they want to do things for themselves and

to participate in the world around them. In Montessori classrooms this natural drive towards independence is fostered through practical, social and intellectual experiences. The child becomes an active agent in his or her own education, saying, "Help me to do it myself". Montessori educational approach honours this by helping children move to increasingly higher levels of independence and self-reliance.

### **Montessori Curriculum**

Joyce (2017) stated that the Montessori Curriculum offers early childhood learners five key areas of learning. These key areas of learning are: Practical Life; Sensorial; Mathematics; Language and Culture. It is important to know that each of these learning areas in Montessori curriculum is made up of a set of learning materials that teach one key knowledge area or skill. Thus, children develop a foundational understanding of each material through repetition and practice and master the core competencies within each curriculum area.

#### **1. Practical life**

This first key area of learning that early childhood pupils are exposed to is practical life activities. Practical Life activities are everyday activities that embrace all aspects of life. The activities help children to become independent, self-confident, and prepare them for all aspects of learning. These activities revolve around four areas:

**Motor Development:** Developing fine motor skills through activities like buttoning, zipping, pouring using tools, lifting & carrying a chair, clamping, clothespins, dry/wet pouring, Spooning objects from one bowl to another, dry transfer using tongs, squeezing wet sponge, threading/Lacing of shoes etc. Developing the gross motor skills through activities like walking on a balance beam, climbing, and using large muscle group.

**Care of Self:** Acquiring self-care skills like dressing, grooming, use of tissue, buttoning, zipping, & tying laces, brushing hair, putting on an apron, walking on the line, hand washing & drying, use of bathroom, coat – putting on, taking off & hanging up, folding/unfolding napkins, pairing gloves & socks, and polishing shoes.

**Care of Environment:** Acquiring care of the environment skills like sweeping, pouring, using shelves/materials, crumbing, sweeping the floor, opening/closing water tap to fill a pitcher, watering plants in the classroom and garden, washing a mirror, apple cutting/slicing, arranging flowers, and cleaning/Scrubbing tables.

**Grace and Courtesy:** Making eye contact, greeting "hello"/handshake, apologizing, asking for help, excusing oneself, handling sharp objects, offering a snack, watching/observing a friend, walking around a rug, speaking softly, individual snack/group snack etc.

## 2. Sensorial

This second key area of learning emphasizes colours, shapes, textures, weights, dimension, discrimination and distinguishing between smells, taste and sound. Maria Montessori believed that nothing comes into the mind except through the senses. During the years between three and six, as children develop their senses, their attention is directed toward the environment. The purpose of the Sensorial activities is to help the pupil sort out the many varied impressions given by the senses. These materials are specifically designed to help them develop discrimination, order, broaden and refine the senses, prepare pupils to be a logical, aware, and perceptive persons. In the same vein, sensorial materials are designed with built-in feedback to control errors and show when mistakes have been made. Thus, after experiencing sensorial activities, the children sense of perceptions will appear inherently structured and capable of comprehending abstract concepts. Sensory activities revolve around five areas:

Visual discrimination: Develops the difference in dimension, width, length, and size can be found in these materials: Pink tower, down stair, red rods, knobbed cylinders, knobble cylinders, colour tablets box etc.

## 3. Mathematics

This third key learning area exposes early childhood pupils to numbers, quantities, counting, addition, subtraction, decimal system, multiplication and division. The Mathematics Curriculum teaches children to understand abstract mathematical concepts and relationships through hands-on learning experiences. Children learn to count, identify and match numerals to their quantity, relate decimal quantities and symbols, and become aware of addition, subtraction, multiplication and division functions using the Montessori materials. Learning mathematical concepts in a Montessori classroom begins concretely and progresses towards the abstract. They are developed from simple to complex. Process is taught first and facts come later. The child using these materials experiences order, coordination, concentration, and independence. The mathematics activities are not to be implemented at a set pace. Providing the child with the materials at precisely the right challenge level will enable the child to demonstrate his development to the teacher through his progress. A child that is able to grasp such math concepts as addition and subtraction demonstrates the successful use of the math materials. The materials are so beautifully designed and appropriate for each child during his sensitive periods of learning math. Mathematical apparatus provides the necessary stimulation for the child to learn math concepts more readily. The mathematics activities are organized into five groups which include:

**Decimal Lesson Plans:** These lessons involve the decimal system using the golden bead material. The child will become familiar with the names of the decimal categories; units, tens, hundreds, and thousands. The activities involve in this lesson are: Decimal tray, building tray, Golden bead layout, Fetching game and Exchange tray.

**Linear Counting Lesson Plans:** Quantity is presented using the teen and ten boards followed by symbol and association. The one-hundred boards and bead chains develop number concepts and recognition of numbers one through one-hundred. The bead chains also introduce the children to skip counting; five, ten, fifteen, twenty, etc. The activities that pupils can engage in include: Teen Board, Ten Board, 100 Board, Short Chains and Long Chains.

**Addition/Subtraction/Multiplication/Division:** Here, pupils engage in such activities as: Addition with Red & Blue rods, Addition Strip Board, Static & Dynamic Addition with Golden Beads, Multiplication Board, and Static & Dynamic Multiplication with Golden Beads, Subtraction Strip Board, and Static & Dynamic Subtraction with Golden Beads, Division Board and Static & Dynamic Division with Golden Beads.

**Paths to Abstraction:** Here the pupils are introduced to mathematical concepts in concrete form. The use of concrete materials to learn abstract concepts and operations is fundamental to the development of the mathematical mind in the Montessori classroom as the materials represent abstract ideas. The materials can be felt and manipulated so that the hand is always involved in learning.

#### 4. Language

This fourth key area of learning exposes pupil total language, phonics, letter formation, sentence structure, vowels and consonants, writing, reading and early literacy skills. The Montessori Language Curriculum provides children with the knowledge and skills to build their vocabulary and understanding of language. The skills required for reading, writing and oral language are developed through hands-on experience using the Montessori language materials. Children learn letter sounds (phonics), letter identification and formation, how to combine sounds to make words, how to build simple sentences, and how to properly hold a pencil. Oral language skills are developed through daily social interactions, group time experiences, and lessons in grace and courtesy. Examples of materials and activities include: Sandpaper letters, moveable alphabet metal Inset and three part cards, encouraging early reading and writing skills through a phonetic based approach, and building vocabulary and language skills through exposure to a rich language environment.

## 5. Culture

This fifth key area of learning exposes pupil to Geography, language, cooking, zoology, science, history, music and art. The Culture Curriculum incorporates a wide range of subjects, including: Geography, Botany, Zoology, Science, History, Music and Art. Through explorations of culture, children develop an understanding of their community, and the world. The cultural activities include:

### a. Music and Movement

Explore traditional songs, dances and instrument from various culture.

### b. Cooking and Food Preparation

Engage children in preparing simple dishes of different culture, teaching about ingredients, measurement and cooking techniques.

### c. Art Project

Offer activities like painting, drawing, and crafts base on different culture in Nigeria.

## **Benefits of Montessori Educational Approach to Early Childhood Pupils:**

1. Its emphasis on the key developmental milestones of early childhood pupils which facilitate the total development of the children, such as:
  - a. Sensory development (developing the five senses e.g. sight, sound, touch, taste, and smell) and developing perception, discrimination and exploration of the environment.
  - b. Motor development (development of the fine and gross motor skills)
  - c. Language development (building vocabulary and language skills of pupils through exposure to a rich language environment)
  - d. Cognitive development (fostering problem-solving and critical thinking skills in the pupils)
  - e. Social-emotional development (promoting independence, self-regulation and responsibility in the pupils), and
  - f. Practical life skills such as acquiring self-care skills
2. It encourages early childhood pupils to share and work cooperatively to explore the various stations in the Montessori classroom. Children in Montessori classrooms, by the very nature of the environment, learn to respect one another and build relationships, which is highly effective for young children in the school community.
3. Montessori educational approach enhances child-centered learning. Pupils enjoy a classroom and curriculum designed based on their specific needs and abilities, allowing them to explore and learn at their own pace and on their own terms. Everything in the classroom is within the child's reach because furniture is sized for children to sit comfortably.

4. It allows the children to learn through exploration, discovery and direct experience, which is highly effective for young children's cognitive development as it exposes them to hand-on, sensory-based learning.
5. It promotes individualized instruction by allowing each child to progress at their own pace, with the teacher serving as a guide and facilitator. This personalized approach caters to the child's individual learning and developmental needs.
6. It provides children with a well-structured and enriched learning environment that encourages them to explore, experiment, and develop a sense of order and responsibility.
7. Montessori curriculum emphasis strongly on practical life skills such as self-care, care of the environment and social interaction. These activities help the children develop their fine motor skills, concentration, and a sense of order, which are essential for their total development.
8. This educational approach is built on respect for the child, their unique interest, and their natural learning inclination. These foster a sense of self-confidence, independence, and intrinsic motivation in the children.
9. Montessori educational pedagogy focuses on the holistic development of the child physically, mentally, socially, emotionally, and spiritually. This comprehensive approach enables children to develop a strong lifelong learning and well-being foundation.

## **CONCLUSION**

Montessori's educational approach is educative, fun, practically oriented, and self-directed. Children enjoy a blend of freedom and a structured environment, using learnable manipulative and self-correcting materials with age-appropriate lessons. Thus, all activities are intrinsically motivating, extrinsically rewarding, and geared toward the child's mental, physical, emotional, and social development.

## **SUGGESTIONS**

In view of the above discourse, the following recommendations are advanced:

1. Early childhood teachers should be encouraged to adopt the Montessori educational approach as it facilitates effective learning in the children since it is practical and oriented and enables children to learn at their own pace.
2. Government and private school proprietors should organize seminars and workshops for early childhood teachers to expose them to comprehensive Montessori training, which will enable them to understand the philosophy, methodology, and classroom management techniques of the Montessori educational approach, thereby enhancing their professional

competence, which invariably will help them to implement this educational approach efficiently in the classroom.

3. Early childhood teachers should observe children to identify their needs, interests, and developmental stages and tailor their learning experiences accordingly.
4. Early childhood teachers should facilitate child-directed learning by guiding and supporting children's exploration rather than directly instructing them.
5. Government and private school proprietors should ensure that the school curriculum, teaching staff and physical environment are aligned with the Montessori principles and standard. They should also invest in high-quality Montessori materials and equipment to create a well-equipped, engaging learning environment for the pupils.

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