

PRINCIPLES OF MONTESSORI EDUCATION

Sue Birdsall Tineke van Gasselt Felicity Young

INTRODUCTION

The Montessori method of education which was developed in the early years of this century grew out of the work of Dr. Maria Montessori (1870-1952) with disadvantaged children. From her early education experiments in which she used the learning materials of Itard and Seguin, she went on to adapt her ideas to the education of normal children. In the first “Casa dei Bambini” in Rome (1907), she experimented with and refined these “materials of development” and went on to expand her ideas further into a fully articulated approach to education, first for children from three-to-six years and later for the six-to-twelve years age group. In addition, she outlined an educational approach for twelve-to-eighteen years olds, and together with her close collaborator Adele Costa Gnocchi, developed materials and guidelines for the first three years of life. In Australia there are currently Montessori classrooms for children between eighteen months and twelve years of age.

Maria Montessori did not start out in education as her chosen field. Being the first woman to graduate from Rome University with a Medical Degree, her approach to education was that of a scientist which resulted in her using observation as the basis for her ideas. It was not until the middle of this century, almost fifty years since her work in Rome began, that she wrote her major work, **The Absorbent Mind**. This book documented her observations from the work she did with children from all over the world.

Maria Montessori’s work crystallised phenomena about children’s development that had been hitherto unrecognised. She realised that children come into the world with a potential for development and not, as was believed in her day, ‘a blank slate’. She also recognised that the brain develops according to certain critical periods which she called “Sensitive Periods”, in which certain skills or capacities apparently require stimulation in order to develop. Maria Montessori developed ideas way ahead of her time and many aspects of her work are only now being fully recognised.

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The Montessori approach to education is concerned foremost with the development of human potential. To achieve this, a fundamental principle is to **follow** the development of **the child**. Montessori observed that each child has his or her own unique pattern of development to follow and by creating opportunities for the child to reveal this pattern, it becomes possible to understand what each child needs to develop fully as a human being. A Montessori educator is concerned with supporting and nurturing the development of each individual child in all aspects of life. This process is helped by the fact that each child has an intense creative motivation towards self-actualisation and inner guides and powers which enable him/her to seek out what is needed for developing his/her potential.

In the first stage of life, from birth to approximately age six, the child has the power of an **absorbent mind** — a special power to absorb all the details of the world around him or her and to incarnate them. Initially, this process happens unconsciously. Then gradually, from the age of 2 to 3 years old, it becomes a more conscious process when the child comes to select what will best assist his or her development. From the age of approximately six years, the child has the power of the **reasoning mind** which guides his/her interactions with the environment from then on.

Another inner guide children have is what Montessori referred to as “**Sensitive Periods**”. These occur throughout the formative years and are special sensitivities to acquire particular skills and

knowledge more easily than at any other time in life. Each sensitive period is marked by children showing strong spontaneous interest in certain aspects of life around them and are most noticeable in the first six years of life. According to Jane Healy (author, lecturer and consultant in applying brain research to learning situations in the classroom and home), it is now confirmed by neuroscience that if the child's developmental needs are not met during these **critical periods**, we may close down some of these developmental windows.

The **Sensitive Periods** Montessori observed in children between birth and age six are:

- **Language** (prenatal – age 6);
- **Movement** (prenatal – age 4);
- **Order** (birth – age 5);
- **Interest in small details** (18 months – age 3);
- **Sensorial exploration** (birth to age 6);
- **Tactile exploration** (age 2 – age 3);
- **Grace and Courtesy** (age 4 – age 5); and
- **Mathematics** (from age 4 onwards).

Sensitive Periods that manifest themselves after the age of six include:

- Exploration of the wider society outside home and school;
- Social Interactions;
- Intellectual Development;
- Abstract Thinking, i.e., development of the imagination; and
- Development of the moral sense.

A further principle of Montessori education is that Maria Montessori realised the importance of the **link between mind and body** for harmonious physical and mental development. As an illustration of this belief, Maria Montessori called the hands “the instruments of intelligence.” She recognised that the human mind is designed for growth and that this growth is dependent upon stimulation from the environment. Each experience resulting from the child's active interest in the people and objects in his or her environment contributes to the child's process of self-construction by building the mind and personality. There is emphasis in the Montessori approach to education on the mind and body forming an integrated whole and development occurring as a result of the child's spontaneous interaction within a structured, or “prepared environment”.

An important concept in Montessori education is that of the “**prepared environment**”. In an environment prepared to cater for the developmental needs of a child, Montessori believed that children will direct their own development by incarnating the environment, i.e., making it part of themselves. Montessori in **Education and Peace** speaks of this force as a “love for one's environment”. She stated:

“The love of one's environment is the secret of all man's progress and the secret of social evolution.... Love of the environment inspires man to learn, to study, to work.”

A perfect example of the first ‘prepared environment’ is the womb. In that environment, especially created by nature, all the child's needs for optimal development at that particular stage of life are met. Similarly, the term ‘prepared environment’ is used to describe a Montessori classroom. Each one always contains those elements that are considered essential for optimal development according to the child's sensitive periods and psychological characteristics, prevailing at the time. A Montessori 3-6, 6-9 or 9-12 environment (or classroom) is especially prepared to take into account the needs of children in each of these age groups. Each environment is also designed so that children can **develop at their own pace** and direct their own learning.

Observation of the children and their development, by the adult involved, is the key for assisting children to obtain the most from their interactions with each prepared environment. The Montessori classroom is prepared to assist each child develop independence and mastery of his/her environment. Only the assistance *needed* by a child is provided. This was expressed by a pre-school child once as “help me to do it myself”. Any unnecessary aid is felt to hinder, not promote, development. The classroom has been set up in such a way that it enables the children to operate independently as much as possible for their stage of development.

The adult who facilitates the learning in a Montessori classroom is called a **directress or director** rather than a teacher. His or her main role is to prepare the environment, observe the children and, as a result of his/her observations, assist the children to interact meaningfully with the environment. The adult does not directly teach the children who will teach themselves given that the environment has been prepared correctly. Renilde Montessori in “The Timeless Spirit” – a paper prepared for the 1988 Association Montessori Internationale (AMI) International Study Conference, says of the adult’s role as educator:

“At one and the same time, we follow our children, we guide our children, and we walk by their side, matching our steps to theirs.”

The materials found in Montessori classrooms, are not “teaching aids”, but enable children to be in charge of their own learning. The **Montessori equipment** has been carefully designed for a specific purpose, which is the development of an ordered mind. They are designed to isolate the quality of the concept they embody, are child-sized, concrete, attractive, precise, manipulable, real and generally self-correcting. Task completion, repetition and opportunity to develop concentration are all inherent in the materials. They enable independent use by the child, offer challenge and encourage cycles of activity.

Each Montessori classroom (except in the birth-to-three period) comprises children of a **three year age range**. For example in a 3-6 classroom (Montessori pre-school) three, four and five year olds learn together and teach each other. This promotes a caring community of children who help each other, allowing opportunities for the development of responsibility, independence and the awareness of others’ needs. A Montessori primary school follows on from the pre-school with classes for 6-9 and 9-12 years olds.

The exception to this rule is the birth-to-three age range due to the vast difference in development between a newborn baby and a three year old. In Montessori centres for children under three, there is usually one environment referred to as “**Nido**” (“nest” in Italian) for children up to the age of twelve-to-fourteen months who have learned to walk independently. Another environment called, “**Infant Community**” then caters for children between the stage of independent walking and readiness for the 3-6 environment.

Montessori classrooms generally have an atmosphere of cheerful orderliness and purposeful work which enables children to concentrate and operate independently. Social cooperation and taking care of the classroom environment develops as children satisfy their own developmental needs. **Self-discipline** gradually develops as children in an atmosphere of **freedom within limits** are given freedom to choose an activity, work with it as long as needed, repeat it as often as they wish, choose where they carry out the work and to move and communicate freely. Each freedom has as its limitation **respect** for the rights of others and respect for the activities and the environment.

Although Montessori stressed that each child has his or her own unique pattern of development, like others such as Erikson, she also observed universal patterns that govern the developmental stages of all human beings. She called these universal stages “**Planes of Development**”. She saw each plane of development as being composed of approximately 6 years, with sub-planes of 3 years each. Separate planes of development operate from birth to 6 years, then from 6 to 12

years, from 12 to 18 years and from 18 to 24 years. The first three years of each plane she saw as a period of creation and the second three-year period as the period of further refinement and consolidation. For example, coordinated move-ment is mastered within the first three years of the first plane whereas further refined and precise movements are mastered in the period between age 3 and age 6.

In each plane of development children learn differently. The primary aged child will learn in a very different way to the preschool aged child, hence each needs a differently prepared environment and an adult to support and promote their learning and development. Learning is not vertical but different at each plane of development though the knowledge and skills acquired in the previous plane are utilised and built on in the succeeding plane. Education was seen as a life-long process by Maria Montessori, a process that starts at the beginning of life. She coined the phrase, **“Education must be an Aid to Life”**. From this principle it follows that education can only be effective if it is carried out in harmony with the child’s developmental needs, i.e., **in harmony with life**.

This paper will now describe the prepared environments for the first two planes of development covering the period from birth to twelve years of age and conclude with the ideas outlined by Maria Montessori for the third plane of development.

THE PREPARED ENVIRONMENT FOR THE CHILD BETWEEN BIRTH AND THREE YEARS OLD

Maria Montessori recognised, as so many others since, that the experiences during the first three years of life have a lasting effect on the rest of our lives. She gave a special name to this period and called it the time of the **“Spiritual Embryo”**. This name implies that there is a relationship with the embryonic period of pregnancy, a period during which all foundations for subsequent physical develop-ment are formed. Maria Montessori believed that in the first sub-plane of development the mind absorbs information that is used as the foundation for subsequent mental development. It becomes clear then that the quality of care a child receives during this period needs to reflect recognition of his/her physical as well as psychological needs. For the prepared environ-ment this means it is not only important to have materials and activities to help children accomplish certain levels of skill, but the way in which these levels are mastered and the way the child is approached during these processes influences the way the child comes to perceive him/herself. As mentioned earlier in this paper, the diversity of needs of the child during the first three years of life calls for more than one ‘prepared environment’. The sensitive periods that operate are: movement, language, sense of order, sensorial and tactile exploration and interest in small details.

In the period immediately following birth, which is considered as the biggest transition we ever make in our lives, the child needs assistance in making this transition smoothly. This is achieved by giving the child continued contact with those aspects that were familiar prior to birth, such as the sound of the mother’s voice, heartbeat and breathing pattern, sounds of the environment that were absorbed in utero (such as familiar music and other voices) and contact between the baby’s face and hands (the hands are often placed on the cheeks in utero). It also helps if the birth takes place in dim light and the baby is born/bathed in water of body temperature.

The first two months of life are considered to take care of the period of transition. It is referred to by Montessorians as the **“symbiotic period”**, i.e., the period during which both mother and baby fulfill each others needs. Gradually the baby’s interest will shift from the immediate family to the world beyond that. Initially, the prepared environment basically consists of the mother, father and siblings. As in nature, it is considered the father’s task to shield mother and baby from undue influences so that the process of transition can take place in a relaxed and supportive manner. By the end of the symbiotic period, if conditions have been favourable, the baby sees life after birth as just as good or possibly even better than before. This results in having an optimistic outlook on life

which means the baby has learned that the environment can be trusted to meet his/her needs. This **basic trust in the environment** is also described by Erikson (1972) when he talks about the “eight ages of man”.

The next step in the baby’s development process is to achieve basic trust in him or herself. The sign that the baby is ready to start exploring the environment beyond the immediate family can be observed when during feeding time the baby’s focus is no longer only on the person who feeds him/her. The baby has learned to recognise people who smile at him/her and starts to want to grab hold of things that up until now have only provided visual stimulation. The hands are studied intensely as if the baby knows that his/her work is just about to begin. Around the time a baby can hold things in the hand and bring these to the mouth, the first teeth usually start to appear, the saliva changes consistency to now include the enzymes needed for digestion of more complex carbohydrates and the time has come to very gradually introduce the baby to food other than milk. This time in the baby’s development is seen by Montessorians as the first step towards independence, and if it is not recognised but dealt with at a later time in life, it will not have the same benefits for the child psychological development. Throughout the birth-to-age-three period physical changes go hand in hand with points in time when changes need to be made to the prepared environment. The first weaning meal in a ‘Nido’ is made into a very special occasion by giving the baby a table to sit at (supported), set beautifully and making sure that the meal can take place without this special occasion being interrupted. It is important that the same person who has been feeding the baby, gives the **first weaning meal**. Like in the symbiotic period, this ensures that although a new step is taken the familiar part of the previous stage still continues. The distance created by the little table between adult and child are symbolic of the baby having taken the first step on the road to independence. Over the next 6-9 months the range of foods will increase and the texture of foods will gradually go from smooth to chewable bits. This process is guided by the baby’s responses to the foods introduced. Established routines such as feeding and bathing greatly contribute to the baby’s feeling secure and they take into account the sensitive period for order.

To accommodate the increasing urge for mobility, the baby’s prepared environment, whether it is at home or in a Montessori ‘Nido’ needs to contain a special “**area for movement**”, i.e., a mat or rug on the floor in front of a horizontal mirror. This area gives the baby opportunities for **freedom of movement** at his/her own pace and within the range of his/her own abilities. Such opportunities are not always provided by commercially available aids such as bouncinettes, walkers, playpens, wind-up swings, etc. A newborn baby when given the space can rotate its body 360 degrees already so giving the baby both a bed on the floor, rather than a bassinet, and an area for movement near the rest of the family during the day allow for unrestricted movement — the basis for optimal development of co-ordinated movement later on.

The area for movement in front of the mirror will next need to be expanded with equipment that **aids crawling** and **reaching the erect position**. Crawling aids are no different than what is provided in toy shops for children this age, and it is not always necessary to buy special equipment for pulling up and cruising along if there is enough child height furniture in the house such as coffee tables and ottomans. In a ‘Nido’, rods are provided for pulling up or walking along without adult help. In addition, a specially designed “walking bridge” is often found; a piece of equipment that helps children practice their emerging walking skills safely without adult help. Just before that stage, or concurrently, there is a brief period when children will need practice to walk or stand up while holding on with one hand only. This is provided by having chests of drawers, sliding doors and other materials that need knobs or handles for operation within the baby’s reach.

These attempts to become mobile and to learn to stand up that usually occur in the period between 6 and 12 months, are closely linked again to the child’s psychological development. Adults caring for the child must understand that once a child reaches a certain level of development, the child must be given plenty of opportunities to practice those newly mastered skills, otherwise not only is

the child's physical progress restricted but also his/her psychological development is hindered by our making it seem as if we do not approve of this extra mobility. Maria Montessori says:

"His impulses are so energetic that our usual response is to check them. But in doing this, we are not really checking the child but nature herself, for the child's will is in tune with hers, and he is obeying her laws one by one."

It is clear to see why this period of early mobility is so crucial for establishing self esteem and confidence and is a prerequisite for what Erikson called "**basic trust in the self**".

Once the child can walk independently and he/she no longer needs the hands for stability, the time has come to further explore the skills that require the hands working together. At this point the child transfers from the 'Nido' to the 'Infant Community' if the child is cared for outside the home.

A Montessori 'Infant Community' is primarily designed as a 'home away from home', a special place where children's emerging language and motor skills are catered for by providing activities that closely resemble routines in a home setting. By the time the child enters the 'Infant Community', he/she has reached what could be described as the "**norm of the species**". The child has those qualities that make him/her uniquely human, i.e., speech and the upright posture. Now is the time to introduce the child to more aspects of the world that he/she will become part of when grown up.

In the **language area** of the room the child is given opportunities for vocabulary enrichment. Initially, very familiar classified objects will be presented, sometimes real objects such as fruit or vegetables, and the precise names are given. This work is repeated as often as the child wants. Repetition of work initiated by the child is seen as an indication that there is more to be mastered by the child, something the adult can not always perceive as accurately. Gradually the language enrichment work will include not only three dimensional objects but also pictures of those objects — initially identical pictures and later on matching (non-identical) pictures. The range of groups of objects and cards will move from very familiar objects to less familiar ones. The last steps in the language program for children in the Infant Community is learning words from nomenclature cards and recognising objects by touch (which builds on the Sensitive Period for the stereo-gnostic sense). Both these activities are further built on and expanded in the Montessori 3-6 environment.

Language is of course not restricted to what is provided in the language area. The correct use of language with children of this age, who are in the period of forming the basis of their literacy skills, is an enormously big responsibility for adults in charge. Songs, poetry, stories and discussions are all part of language enrichment as well. Acknowledging children's communication attempts as often as possible will help them perceive themselves as important and helps to strengthen their psychological development at the same time. The language materials are all reality-based as a child in this early stage of development needs materials that help the child to make sense of the world he/she lives in.

The belief that children need to have the physical and psychological freedom to develop according to their own inner clock is demonstrated by a prepared environment, be it at home or in the 'Infant Community', where adults in charge show confidence in allowing the child an appropriate level of independence in the knowledge that children have the innate desire to spend their waking hours doing something constructive. Activity and becoming more coordinated in the process, was seen by Maria Montessori as equally important for the young child's intellectual development as eating and sleeping is for physical growth. She used the term "**psycho-motor development**" and said:

"Therefore, it happens that if a child is prevented from using his powers of movement as soon as they are ready, this child's mental development is obstructed." (The Absorbent Mind)

The opportunities for psycho-motor development in the prepared environment of the 'Infant Community' include, first of all, exercises to improve **eye-hand(s) coordination skills**. Many chances to repeat and practise these skills are offered in the room as well, such as opening and closing containers, squeezing pegs for hanging up wet laundry, applying paint or glue, using scissors, folding, simple sewing, etc.

In addition, the child is introduced to **Practical Life Activities**. These activities are further expanded and refined in the 3-6 prepared environment. Practical Life Activities centre around tasks that are concerned with **looking after the self** such as hand washing, grooming, dressing/undressing and storing clothes. They also centre around tasks that are needed for **looking after the class room** (or house) such as dusting, sweeping, mopping, watering plants, dish washing and cloth washing. Another important part of the practical life area includes activities related to food preparation such as chopping, peeling, brushing, stirring, kneading, table setting and serving food. As mentioned before, in the 'Infant Community' Practical Life reflects what happens at home, so similar opportunities can be provided at home. These activities again provide many ways to nurture physical as well as psychological growth while the child is becoming more co-ordinated, develops concentration span, vocabulary, love for the environment, self esteem, inner security and independence. The Practical Life Activities are provided for the **benefits of the process** not for the outcome of the activities.

Practical Life Activities which may lose their attraction to us later in life are of great interest to children this young. Children derive deep satisfaction from these activities, more so than from toys that merely entertain. The activities provide children with an opportunity to learn the cultural habits of their society and give them 'grown-up' tasks at a manageable level. It is a wonderful way of validating children. According to Montanaro (1991), when mobility and dexterity develop in such a way that the needs of the growing child are respected, physical and mental activity go hand-in-hand and the young infant starts to see the world as place where needs are met and initiative is rewarded with personal satisfaction. Such an environment fuels a **positive self image** and gives the child confidence and greater self awareness. The Practical Life Activities are aimed at helping the child develop these characteristics and, at the same time, forming a perfect link to help the child's transition from home to being cared for outside the home, albeit an 'Infant Community' or a Montessori 3-6 classroom.

THE PREPARED ENVIRONMENT FOR THE THREE TO SIX YEAR OLD CHILD

During this stage the most sensitive periods are in operation, the majority of which started during the birth to three stage. These sensitive periods occur in six main areas: language; movement; sensorial development; order; acquisition of social customs and behaviour of the culture; and mathematics. An environment of prepared activities designed to foster development in each of these areas is presented in such a way as to stimulate children to spontaneously choose the activities that will enhance their own individual development at any particular time. This environment also takes account of the power of the "absorbent mind".

Movement

The refinement of co-ordinated gross and fine motor movement is particularly fostered by the **Practical Life** area. Young children are urged by nature to develop control of their movements as this is essential to their self-development. The practical life activities offer opportunities to cater for this urge. By mastering co-ordination of bodily movements, in particular the hand, children are able to engage in activities that will further develop their intellectual and social capacities.

Purposeful activities which are drawn from real life and which assist the mind and body to function together in an integrated way can be found in the Practical Life Area of the classroom. Many of these activities are already familiar to the children from their home environment. They involve

pouring, sweeping, polishing, scrubbing, washing, preparing food, ironing, arranging flowers, gardening and taking care of animals. Real objects are used — a real iron, knives, china, glass, brooms, mops, among others.

The intense interest the children have in doing these activities promotes very careful, concentrated, co-ordinated movement where mind and body are working together for a developmental purpose. As children learn how to care for their environment and themselves in a responsible way, self-esteem and independence also develop.

Language

“Language acquired during the period between birth and three years is refined and elaborated during the pre-school years” (Hilson, 1990).

Not only is spoken language refined and extended, but the children are offered the opportunity to expand into written language as well. **Oral** language which developed from birth to three continues to be expanded through songs, stories, poems, games, conversation, pictures and sets of vocabulary cards. The vocabulary cards classify and order familiar aspects of the child’s daily experiences and also stimulate interest in and classify the natural world of spiders, whales, plants, fishes, shells, etc. As one of the child’s major natural urges or sensitivities is to label and name his/her world, there are enormous opportunities for enlarging oral vocabulary at this stage of development.

A very sensitive period for **writing** can emerge between 3 and 4 years of age. Multi-sensorial activities which indirectly prepare a child for writing utilise visual, auditory and tactile experiences. These include:

- the letters of the alphabet in sandpaper form;
- games to help children hear and analyse the sounds in language;
- moveable letters which enable a child to write using his/her own creative invented spellings; and
- design activities to foster use and control of a pencil.

These writing activities in turn provide indirect preparation for **reading**.

Oral and written language activities are also provided in another area of the classroom which is referred to as the “**cultural** area” represented by geography, botany, zoology, physical sciences, art, music and history. The activities in this area introduce the child to an understanding of the cosmos which is elaborated on in greater detail under the prepared environment for the 6-12 year old children.

Sensorial Exploration

The first six years of life are characterised by a heightened sensory awareness. From an early age, children are developing a sense of **order** and actively seek to sort, arrange and classify their many experiences. In the 3-6 classroom, specifically designed activities give the children concrete experiences in the abstract sensorial dimensions or qualities by which we make sense of the world, such as colour, size, shape, length, weight, sound, pitch, texture. The sensorial activities assist the child in understanding and classifying his/her world and then make the world even more meaningful to the child through the precise language that is then attached to these activities, such as loud/soft, long/short, rough/smooth, large/small, circular, cubic, etc. For example, a set of ten red rods which are identical except for their exact variations in length, through manipulation, give a child concrete experiences of and help him or her to understand and classify the abstract quality of length.

The sensorial materials provide a means for a growth in perception and knowledge that forms the basis for abstraction in thought.

Order

The need for order is vital to a child's development. During the pre-school period, mental structures are in the process of formation and the child needs external order to support this development. Order assists the child to develop an understanding of relationships and to make sense of the world. The prepared environment is structured and ordered with many activities presented in a sequential manner. The steps or movements within each activity are carefully analysed and presented clearly and sequentially so that the child can see each step involved. The order in the environment also provides a security for the child and provides greater opportunities for independence.

Customs and behaviour of the culture

"The major social task of the young child is adaptation to its culture" (Hilson, 1990).

This development occurs mainly during the preschool years. A clearly defined sensitive period for what Montessori called "**Grace and Courtesy**" occurs between the age of 4 and 5 years old. At this time children are particularly interested in the manners and customs of their society and culture. Many activities are provided in the practical life and language areas of the classroom to familiarise children with cultural aspects of the environment, and games are played to give children the skills to interact in a socially positive way with the other people in their classroom and local society. Group and individual social responsibility are developed and supported.

Mathematics

The child's "**mathematical mind**" is nurtured early in the Montessori pre-school environment. The three fundamental mathematical structures of classification, sequence and topology are explored using concrete materials which the child manipulates to come to an understanding of mathematical concepts and relationships by him/herself.

THE PREPARED ENVIRONMENT FOR THE SIX TO TWELVE YEAR OLD CHILD

The child in the second plane of development (age 6-12) differs physically and psychologically from the child of the first plane of development (0-6). The loss of baby teeth is one of the first indications that the child is entering a new stage of development. The child between age 6 and age 12 is physically stronger, the body is longer and leaner and movement is freer and more agile. The child's hair becomes thicker and straighter, losing its baby softness. This child seeks challenges, whereas before he/she sought comfort.

Psychologically, the child in the second plane of development is characterised by three main traits. These are:

- the need to '**go out**', to escape the enclosed environment of school or home;
- the passage to abstract thinking; and
- the birth of moral sense.

The child has a need to make contact with wider society — to 'go out'. The child feels confined by the limited environment of home and school; he needs experience in the real world. It is vital that children of this age group are given opportunities to go out. Montessori says:

"A child enclosed within limits however vast remains incapable of realising his full value and will not succeed in adapting himself to the outer world." (From **Childhood to Adolescence**)

When children go on excursions, they discover that they are responsible and independent in wider society. The children are fully involved in the planning of an outing, i.e., the budget, timetabling and phone calls to establishments.

Children at this stage of development seek to establish relationships with others. There is a move away from ego-centricity towards exploring group dynamics and interactions with others. Montessori wrote about the “**herd instinct**” of this age. The child is drawn to his/her peers and wishes to belong to a group or gang. Clubs are formed, with leaders, rules and laws. Children are loyal to the group and often the rules imposed on and by the group are much stricter than those that adults would impose. The child is learning how to become a social being in a miniature version of society; it is preparation for the future and for his/her role in adult society. In the primary classroom, the directress encourages group work and new presentations are now given to a group of children.

The child in the second plane of development experiences a sensitive period for the **intellect**. The mind of the 6-12 year old child operates differently from the child between birth and age six as the former has the capacity to learn at a conscious level. The child at this age wants to explore intellectually rather than sensorially. He/she is interested in abstract concepts. Montessori devised materials for this age group which reinforce concepts but do not rely on repetition of the same activity. For example, in mathematics, multiplication can be explored parallel to using the ‘large bead frame’, ‘checkerboard’, ‘bank game’ and ‘golden bead frames’. These Montessori materials allow the child to work towards abstraction and reinforce the processes of the operation.

This is a time for sowing the ‘seeds of culture’ as the child is psychologically ready to think abstractly. The child is interested in exploring the reasons **why** things are, the way they are. Questions asked start with “Why”, “How”, “When” whereas previously questions started with “What”. This older child has a desire to explore cause and effect and to investigate and research all he/she encounters. The primary directress recognises that this child is capable of using his/her imagination to move through time and space. This is referred to as the power of the “**Reasoning Mind**”. Montessori (1976) writes:

“The world is acquired psychologically by means of the imagination. Reality is studied in detail, then the whole is imagined”.

The child in the second plane of development is given great lessons and impressionistic charts which appeal to the imagination and spark his/her own research and investigations. Montessori referred to this approach as “**Cosmic Education**”. Cosmic Education enables the child to understand the relationship between humanity and the universe. The concept of Cosmic Education is that the universe operates to a predetermined plan where all creation, including humanity, have a part to play. Mario Montessori (1976) writes:

“To the older child we must give not the world but the cosmos and a clear vision of how the cosmic energies act in the creation and maintenance of our globe.”

He emphasises that each element of the universe has a job or “cosmic task” to do which contributes to the good of the whole. Humanity represents a new form of life in the cosmos with specific tendencies and needs and the skill to transform the environment. Mario Montessori (1976) stresses that an integral part of cosmic education is to give the child:

“...a clear vision of how, through work, the naked and feeble man, he was on his appearance upon the earth, became the supraman who has built our present civilization.”

Cosmic Education allows the children to develop a sense of awe and gratitude for the universe, their role in humanity and the work of people who came before them.

The “**Moral Development**” of the child is a slow process that occurs from birth as the child needs to learn values like any other knowledge. In the second plane of development the child is naturally oriented towards behaviour and the judgements of actions. The child seeks to distinguish what is good from bad and to establish a guide in his mind regarding behaviour. The child wishes to find out about consequences of actions and he/she will judge the actions of others. The child is interested in the adult’s opinion; however, it is important that the child finds answers through his own means (not being told by an adult). Conflict resolution and group discussions of problems are the ‘grace and courtesy’ lessons for this age group. The development of the moral sense is important as it provides a technique to live and adapt as a social being.

MONTESSORI’S IDEAS FOR THE TWELVE TO EIGHTEEN YEAR OLD PERIOD

Montessori recommended a period of time to be spent in the country, away from the environment of the family. While there the adolescent should work in the country, not as an agricultural labourer but on a study of civilization through its origins in agriculture. The sale of produce would bring in the fundamental mechanism of society, production and exchange, on which economic life is based. These two areas of study would provide the adolescent with the opportunity of learning, academically and through actual experience, what are the elements of social life. Montessori suggested the adolescents live in a hostel which they would learn to manage and establish a shop to sell agricultural and village products. In the discussion of the adolescents and their needs, Montessori said it was impossible to give anything but a general plan for their studies and work; that a program could only be developed from experience. This concept she called “**Erdkinder**” (German for *land children*).

She outlined ideas for a proposed educational syllabus which she felt should not be restricted by the curricula of existing secondary schools. According to Stephenson (1988), the proposed syllabus was divided into three parts:

- the opening up of ways of expression;
- the fulfillment of those fundamental needs that are formative forces in the development of the soul of man; and
- theoretical knowledge and practical experience to make the individual a part of civilization of the day.

First, she proposed free choice of all kinds of artistic occupations including music, language and art. Some activities would be for individuals, some for groups.

Second, she recommended: moral education for spiritual equilibrium; mathematics (because without education in mathematics it is impossible to understand or take part in the special forms of progress characteristic of our times); language, for help in establishing understanding between people.

Third, general education classified in three groups:

- the study of the earth and living things;
- the study of human progress and the building up of civilization; and
- the study of the history of mankind.

The study of human progress should bring the adolescent to understand that machines have given people on earth powers far greater than are natural for them and, therefore, a new morality, which is both individual and social, must be our chief consideration. The powers of human beings and the

greatness of civilization should be presented in a form that will demonstrate the responsibilities towards humanity that individuals incur when they assume powers so much greater than those with which they are naturally endowed.

Unfortunately, Montessori herself did not live long enough to draw up the syllabus in detail, but there is much work being undertaken by Montessorians in the USA and Europe today to develop a model for 'Erdkinder'.

CONCLUSION

Montessori saw education as having an even wider purpose than the development of each child. She saw the child as an agent for change. She felt if education followed the natural development of the child, then society would gradually move to a higher level of cooperation, peace and harmony.

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