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A STUDY OF A MONTESSORI EDUCATIONAL ENVIRONMENTS.

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<u>CONTENTS</u>	<u>PAGE</u>
ACKNOWLEDGEMENTS	i
TABLE OF CONTENTS	ii
LIST OF ILLUSTRATIONS:	iii
INTRODUCTION	1
<u>CHAPTER 1</u>	
1:1 A Brief History of Montessori Education	4
1:2 Aims and Objectives of Montessori Education	7
1:3 The Montessori Methods of Education	11
<u>CHAPTER 2</u>	
2:1 The Childrens House:	
Personal Observation within the Montessori Environments	16
2:2 Practical Life	19
2:3 Sensory Section	29
2:4 Mathematical Materials	31
2:5 The Material used for Language Education.	39
CONCLUSION	41
References	44
Bibliography	44

List of illustrations

	<i>Page</i>
<i>Fig. (1)</i>	17
<i>Fig. (2)</i>	18
<i>Fig. (3)</i>	20
<i>Fig. (4)</i>	22
<i>Fig. (5)</i>	22
<i>Fig. (6)</i>	23
<i>Fig. (7)</i>	23
<i>Fig. (8)</i>	24
<i>Fig. (9)</i>	25
<i>Fig. (10)</i>	25
<i>Fig. (11)</i>	27
<i>Fig. (12)</i>	27
<i>Fig. (13)</i>	30
<i>Fig. (14)</i>	30
<i>Fig. (15)</i>	32
<i>Fig. (16)</i>	33
<i>Fig. (17)</i>	34
<i>Fig. (18)</i>	35
<i>Fig. (19)</i>	37
<i>Fig. (20)</i>	37
<i>Fig. (21)</i>	38
<i>Fig. (22)</i>	40
<i>Fig. (23)</i>	40

Introduction

Imagine you have just walked into a darkened room. You stretch your arm out to reach for the light switch, but it is up too high on the wall, just beyond your fingertips. You sit on the chair in the room, but when you scoot all the way back; your feet no longer touch the floor. There is a lovely vase of flowers on the table and you are extremely curious about how they smell and how the leaves and flowers feel, but you know it is against the rules to touch them. Your frustration is multiplying in this room and you find yourself falling into bad humor. Pretty soon, you are going to misbehave.

This is a common reality for children. There are very few environments in which children can feel truly comfortable. The environment can become an obstacle, rather than a help to the development of the child. This can often prevent the child from exercising his own activities, and therefore the expansion of his own personality. A child should feel really comfortable in his environment. Go back to the imaginary room, A special strap attached to the switch makes it possible and simple for a child to operate, or a small chair allows the child to sit comfortably. There are many advantages to an environment where children are welcome. The likelihood is, that the child who is free to explore in his classroom will become more alert, self sufficient, and content to play alone with a teacher nearby, than a child who is nailed to the benches of the school so that he cannot move. Thus the child looks to the teacher for direction, and is afraid to move without the teacher's permission.

This is a very important aspect of education, and has not been dealt with properly, particularly in public primary schools, run by the Department of Education. The present curriculum concentrates mainly on educating the children academically. The curriculum is based on completing different series of books, for each topic

within the school terms, throughout the year. These include English, Irish, and arithmetic.

However, this is all the teacher is supplied with to educate the children. Accordingly the children are not developing as true individuals. An education must not only supply a child with a rich knowledge of academic skills. It should encourage a child to be self reliant and independent, particularly in practical life activities such as, dressing washing and cleaning themselves. It should also help the child to develop their powers of inventiveness, enthusiasm and consideration, and expose within himself his natural qualities and talents.

In my thesis I propose to analyse the effects a prepared Montessori educational environment can have on the development of the child. When I finish my Degree, in the National College of art and design, I intend to continue with my studies in Marino College. I hope to receive a B.E.D. (BACHELOR OF EDUCATION) this will qualify me to become a primary school teacher. Consequently, I think it would be interesting to acknowledge an environment as a major part of the child's education, rather than concentrating on their academic skills alone. As a textile student I have learned that environments and their contents, have major impacts on people, particularly young children for they are very sensitive at this age. Children are eager enthusiastic, and intensely absorbent to everything they come in contact with. The colour, aesthetics and design quality of the environment and materials, can have major effects on the success of a Childs learning ability. Therefore, I have chosen to analyse the Montessori method of education in great depth, because one of the overriding principles of Montessori thought is a prepared environment.

Chapter one will consist of the history of Maria Montessori's life and the origin of her method. It will explain how the method of education became known and accepted worldwide. To fully understand and appreciate the Montessori method of education, it is relevant that one realises the various reasons as to why Maria

Montessori devised such a method of education. I will continue the chapter by defining the aims and objectives of the method.

In Chapter Two I will include my personal visits to Montessori schools, where I will observe the interior and most importantly the children interacting with the materials designed by Dr. Montessori. From my own observation and that of the teachers I will be critically analysing the children interacting with the materials. This will give me a sound understanding of the design quality and practicality of the materials. On completion I will hope to have developed an opinion as to which type of education is most beneficial to the child, and what changes could be made to create a more effective educational system.

CHAPTER 1

1.1 A BRIEF HISTORY OF MONTESSORI EDUCATION.

Maria Montessori, born in Italy in 1870 was the first woman to receive a medical degree from an Italian University. She came to the study of education as a clinician, and had long been interested in the virtually ignored relationship between hygiene and school practice.

The young physician, at the age of 28 worked in a school with mentally retarded children. She had educational mathematical materials (spindle boxes and red rods) on the window ledge in her office. She observed how engrossed the children were as they emptied and filled the box containing spindles, all the while they were learning to count and associate quantity and number symbols, over and over again. The exercise had a very calming effect on the children. Maria Montessori noting this based her educational methods and materials on such concepts. She was directress of the children and through her work and development of materials and methods (didactic materials and a prepared environment) the retarded children learned to read and write spontaneously, and passed the public examinations for primary certificates.

These results were incredible, since within the Italian education system this was as far as the average individual child could achieve in educational exams in those days. The results so astounded Montessori that she decided that there must be something wrong with the education of normal children. This led her to seven years of further study in anthropology and psychology, as preparation for work with normal children. Inspired by her results she moved into education of normal children in the slums of Rome with great enthusiasm. She was given a large spacious room and all the children poured into it. She had no support but continued using her own unique method, that of a doctor. She took a scientific approach and quietly observed those small children and their behavior supplying her own educational material, those used to educate the retarded children. Her first school opened in 1907 and was known as the casa dei bambini in Italy Rome. Her ideas and discoveries were soon debated throughout Europe by educationalists, including those in Ireland. Two other

Montessori schools opened within a year. The success at these schools was so immense that their promised to be a new era in education.

By 1912, the English edition of the Montessori method was published in America. Translations began to appear in French, Spanish, German, Romanian Dutch, Japanese and Chinese. Eventually over the next few years her methods would be translated into over twenty languages. A Montessori society was founded in Rome and her system continued to flourish, and spread to schools as far away as Australia and Argentina. There were nearly 100 Montessori schools in America by the year 1913. In December of that year Maria Montessori agreed to go to America. The main event of her visit was her lecture in Carnegie Hall, where a crowd estimated at about 1,000 had to be turned away. She was rightly introduced as the greatest woman educator in history.

On her return to Rome her mother died and she was reunited with her son Mario who was born out of wedlock from the beginning, he called his mother by her name. She claimed that he was her nephew, but later during the First World War it was publicly printed that he was her birth son. She had a very close relationship with him and he supported and worked with her through the years. A sudden halt came to DR Montessori's flourishing success as the First World War intervened, causing immense communication problems between her and her followers. The Montessori education collapsed. Her popularity began to diminish and the 1920's seldom saw the name Montessori in the print.

In Holland despite all the controversy, the Barcelona institute and its model demonstration school flourished. Holland was a country that supported her methods and ideas through all the political and social interest. Also in Ireland in the year of 1920, there was a gradual recognition of the Montessori method.

In 1924, Montessori met with Mussolini. This led to her first official recognition by the Italian Government, and her methods again began to flourish. In February 1926 Montessori began the sixth month training course in Milan for Italian Teachers. When Montessori realized that Mussolini's interest in her methods was to produce a fascist youth organization, using her methods of order to create a docile group of

citizens, she quickly intervened. In a single day Montessori schools ceased to exist in Italy. With the approach of the Second World War Montessori was less concerned with training her directress and classroom methods than preventing the War. The sixth Montessori congress was held in Copenhagen August 1937, with the theme education for peace. Montessori tirelessly repeated this message, pleading for a system of education that would accomplish peace through moral reform. After the outbreak of World War two in 1939, communication was bad and no one knew the whereabouts of DR Montessori and her son, Mario. In actual fact they both arrived in India 1939. She was going to give a training course by the theosophical society in India. Indian leaders of the stature of Ghandi and Tagore were friendly to Montessori and believed her methods could be of great use in their country. She was supposed to stay 3 months but stayed seven years.

After the Second World War Montessori continued to lecture and spread her methods. In 1964, Mr. E.M. Standing (the author of *The Montessori Revolution in Education* 1962), gave a three month evening course which was held in Leeson Street, Dublin, from March to June and a one-month extension course in maths from June 18th to July 16th. This was an important course for the flourishing of Montessori in Ireland. One of the course participants was the late Veronica Ryan, who soon afterwards opened her own school in Thornhill, Kilmacud, and Dublin. This is still flourishing as a full Montessori school. For some years Sion Hill and Thornhill were the only Montessori schools in Ireland. Then the sacred Heart Convents of Mt. Anville, in Monkstown opened. Children's houses in the year 1946, as later did the Mercy Convent in Beaumont. In September 1949 a one-year evening course for Montessori teacher training began in Sion Hill. Seven years later a Montessori teacher training course in Sion Hill was extended to become a full time, two-year course and qualified the graduate to teach children up to nine years of age. Two students qualified from the first course, the following year five. In 1963 the course was extended.

In the year of 1963 the department of education gave official recognition to the A.M.I. (Association Montessori International), Montessori three-year course, when it accepted it as a qualification for working in special classes or schools for disturbed

children. This recognition was then expanded to include mentally handicapped children in special primary schools. This work for Special Education using the Montessori approach was pioneered in 1957 in St. Ultans, Hospital Dublin. Eight years later a full time, one-year graduate course was introduced. The graduates from this course at Sion Hill were now recognised by the department of education and Science to teach in the following categories of special National Schools.

Schools for mildly Mentally Handicapped Children.

Schools for Moderately Mentally Handicapped Children.

Schools for Hearing-Impaired Children.

Schools for Emotionally Disturbed Children.

Schools for Children with Multiple Handicaps.

By 1987 and onwards, undergraduate students of the college became eligible for the higher Education Grant Scheme. The college A.M.I. is now situated in Mount St. Mary's, Dundrum Road, Milltown, and Dublin 14 from where they continue as a Montessori Teacher Training Center. This is the only College in Ireland issuing the 6 – 12 A.M.I. diploma. To the present time Irish trained A.M.I. Directresses are working in a variety of areas here. The Dominicans, now have a Montessori School in Dun Laoghaire. Castlepark, private schools in Dalkey and Mount Anville have a number of Montessori classrooms. There are many private schools throughout the country, but especially in Cork and Dublin. Today although her methods have not been as widely developed as one might expect its merits are manifest where it has been put into practice.

1.2 AIMS AND OBJECTIVES OF THE MONTESSORI METHOD OF EDUCATION.

DR Montessori produced this new method of teaching for a wide number of reasons. From her previous experiences and scientific observations with children, she developed her own famous teaching. The main idea and aim behind her new teaching was to give children a chance to develop their own abilities using a method that

includes singing, cleaning, dancing and using tools which were designed to develop and refine the child's visual and auditory and tactile perceptions. The child educates himself; intelligence is stimulated as increasing powers of observation recognition judgment and classification are developed.

DR Montessori produced this new teaching for children and adults alike. She stressed the importance of adult respect and support for all reasonable forms of activity. Adults should not wait on children but educate them to be independent, while at the same time fully appreciating how sensitive children are to external influences.

DR Montessori felt a great need to develop this new method which would be unlike older and more familiar forms of education. She felt the child was not being dealt with in terms of his true being, but rather was forced to adapt himself to a form of society peculiar to the adult and therefore opposite to his own nature in the very first few years of his life.

*“ The child was only a future and did not represent a becoming he was not therefore taken into account until he became man ”*¹

DR Montessori strongly believed that there was something drastically wrong with our civilization a vital factor had been left out which was the child. For like all civilizations of the past, the basis of which societies have until now been organized, has taken into account only the adult values of life. However the aim of the Montessori method is to restore the child his true rights. To observe the child as a human entity, having importance in himself. Like all human beings he has a personality of his own. For the child carries within him creativity, that can never be erased, it is pure and sensitive. Therefore children require a most delicate kind of care. Adults must not be occupied with his body so tiny, and fragile. They should not think of bathing feeding and dressing him with greatest care. Slavery in children as well as in adults draws out feelings of inferiority and total lack of dignity. The social surroundings which adults have created do not suit the child. The child does not

¹ Montessori, M, The Child and the Family, The Clio Montessori Series Volume 8, Oxford England, Page 25. 1995.

understand it because he is kept apart from it, and not knowing how to adapt to the surroundings from which he has been excluded he is entrusted into a school or home environment that very often becomes for him a prison. Here lies the foundation of the educational problems. The education of character has not been dealt with, and as a result children suffer physically and morally. Because the child is only looked on as a future existence, no one ever concerns himself with the present where so much is required of the child to live. But the (modern) family are more concerned with his physical life (bathing etc.) and only these needs are the criteria for assessing his progress.

However this is untrue for the child also requires spiritual need, just as much as physical needs, for it defines his humanity. In the past and present day this has been neglected. According to Maria Montessori the child has remained hidden and all that is revealed to the adult is the child's forces and energies necessary for him to defend himself (screams, disobedience, sobs). These reactions on the part of the child are often indications of moral illness, or sometimes of nervous disorder.

Maria Montessori did not want the child to be repressed by the more powerful adult who undercuts his will and constrains him to adapt to an unfriendly environment, on the naïve assumption that he is developing the child socially. Therefore she aimed her method of education at adults so they would quit their roles as jailers and as an alternative, take care to prepare an environment, in which adults will do as little as possible to exhaust the child with supervision and instruction. The environment corresponds to the needs of the child, which in turn limit the teacher's role. Adults must however keep in mind that to give the child liberty is not to abandon him to himself or to neglect him. The help the teacher must give him must not amount to a passive indifference to all difficulties he will encounter; rather the adult must support his development with prudent and affectionate care. Moreover Montessori took a serious task on board which was the preparation of the child's environment. She was faced with creating a New World for the child, which was the world of childhood. Within this world of childhood, (prepared environment) everything the children do is willed. They get along perfectly well by themselves without any danger, because the children know what they want. There is a drive for activity, the unhappy noisy,

disobedient children are now transformed into peace and tranquility, the child becomes an orderly being. The child is impelled instinctively toward activity that utilizes all his energies because in this way he can perfect his faculties. Maria Montessori was very successful in designing and creating an environment that would serve the Childs intellectual development. The environment itself will teach the child if every little error he makes is manifest to him, without the intervention of the parent or the teacher, who should remain a quiet observer of all that happens.

To conclude, Maria Montessori aimed and devised her method of education for a number of reasons:

1. She did not want the figure of the child to remain outside our active world, and also outside our minds, she wanted new social activities to arise where the child is their center of inspiration.
2. She wanted the nature of the difference between the child and the adult to be recognised. The child is in a continuous state of transformation of both body and mind, whereas the adult has reached the norm of the species. Hence the main objective is to produce a method of education for infants in which they can not only develop themselves physically, but consequently they can and will develop themselves a path which will lead them to a psychic metamorphoses.
3. The method aims at creating an environment, in which a child can exercise a maximum of spontaneity, it nevertheless enables him to reach the same, or even a higher, level of scholastic attainment as under the old systems. This environment " The Children's House " contains within it the proper educational materials where the child interacts with the environment and becomes absorbed in his work, and develops order self discipline, habits of silence, calmness joy and love of truth. Of her view on liberty and discipline Montessori writes " We call an individual disciplined when he is the master of himself, and can therefore regulate his own conduct".
4. It aims at achieving a higher discipline than formerly, this is different in that it is an active discipline that originates within the child.
5. It allows each child to develop and work at his own pace. Therefore the quick child is not held back by the slow child and likewise the slow child is not falling behind at the faster pace which does not suit him.

6. Each child is dealt with individually in each subject, which guides him according to his individual requirements.
7. As the child is freed from teachers constraints, he is given free choice, without competition and coercion. He is freed from danger of over strain, feelings of inferiority, and other experiences which are apt to be the unconscious cause of profound mental disturbances in later life.
8. Most importantly the aim of the Montessori method is to develop the whole personality of the child, his intellectual faculties and also his powers of deliberation, initiative and independent choice, with their emotional complements. By living as a free member of a real community, the child is trained in those fundamental social qualities that form the basis of good citizenship.

1.3 THE MONTESSORRI METHOD OF EDUCATION

Maria Montessori's method of education is based directly on the observed manifestations of a living thing. "The Human Child" This method has a biological foundation, for her method of research is substantially the same as that of Biologists. Maria Montessori firmly believed that the success of her method was due to this Biological method similar to Naturalists, as they examined living manifestaions in their own environment. They did not take them into his study, because they were free in a n environment that most suited them. They also made sure his presence did not interfere with their natural functions and mode of living, rather they patiently and quietly observed them until they revealed to him their marvelous secrets.

This concept led DR Montessori to realise that neither ordinary nursery schools nor house environments had been made to suit the child. After years of similar observation to that of the famous Biologist, she created a suitable environment "natural environment" (one that suited the nature of the child). Again this environment became the main and fundamental part of her method. Her method is based on 3 main principles.

1. Principles of freedom and liberty in a prepared environment.
2. A Method of education through the senses and sense training
3. A Fundamental principal is the nature of the difference between the child and the adult.

Maria Montessori believed that for one to successfully observe children, it is essential that they are free to express themselves, and reveal those needs and attitudes, which would otherwise remain hidden or repressed in an environment that does not permit them to act spontaneously. Likewise it is very important that the trained observer can see and recognize objective truth. He must also have at his disposal, children placed in such an environment that they can manifest their natural traits.

The technique of the Montessori method firstly follows the guidance of the natural physiological and psychical development of the child that may be divided into three parts. A. Motor, B. Sensory, C. Language.

1.3.1 MOTOR EDUCATION

The motor education or the education of movements is very complex. It must correspond to all the coordinated movements, which the child has to establish in his movements. These characteristics are special in a child. When observing children it is possible to say that they never stay still, they touch everything. This is however what forms a Childs so called unruliness and naughtiness. Adults would deal with him by checking these movements, with the monotonous and useless repetition of "keep still". But the child through such movements is actually seeking the very exercise, which will organize and coordinate the movements useful to man. Therefore it is important that adults should prevent trying to reduce the child to a state of immobility. On the other hand the adult should give order to his movements leading them to those actions towards which his efforts are actually tending. Maria Montessori felt this should be the aim of her muscular education. Particularly at this young age, when a child is given direction his movements are made towards a

definite end. Thus the child becomes quiet contented and an active worker which results in calmness and joy within him.

The education of movement is very important for it is one of the principal factors in producing that outward appearance of discipline, which is to be found in the children house.

The muscular education that Maria Montessori devised includes the exercise of practical life and can be classified under the following headings. (1) Care of the environment. (2) Care of the person (3) Grace and courtesy, and movement which includes walking, rising, sitting, handling objects, and rhythmic movements.

1.3.2 THE SENSORY EDUCATION

The sensory education is very important, for it is not only "things" that interest children but, also the quality of things such as smoothness, brightness, fullness littleness and so on.

This is one of the most important principles of the whole Montessori system, one, which highlights and explains smoothness, roughness, hotness and the like? How did adults gain ideas of smoothness, hotness and so on? They do not remember. However one thing is sure, They did obtain their concept of smoothness from a smooth object, and roundness from a round object, and roughness from a rough object and so forth. There is nothing in the intellect that was not already in the senses. A newborn baby has no ideas any more than a newborn cat. But man has the power to create them.

*" And upon his power is based his sovereignty
Of reasons that capable and godlike faculty, for
It would be impossible to reason without abstract
Ideas"²*

² Standing E.M., The Montessori Revolution in Education, Schoken Prints, Page 49, U.S.A. 1971

Maria Montessori as a teacher was concerned with the fact of this sensorial foundation of life of the intellect, and also with the practical considerations which arise from it. She helped the child in building Ideas by means of sensible objects and completely incorporated this principle into a system of education.

1.3.3. LANGUAGE EDUCATION

When children are three years of age, their spoken language has already developed. Their vocabulary is quite extensive and the grammatical structures of their speech are well established. They have boundless capacity to expand and enrich their language and as a natural consequence the desire to write and read. Maria Montessori recognised this, as one of the child's most exceptional sensitive periods, one that reveals it in the child's early years, a special susceptibility to hearing and reproducing the sounds of spoken language. So great is the child's capacity for words at this stage that he can pick up two or three languages at the same time, without any special effort. Never again will he be able to learn the pronunciation of the language so perfectly, nor with such ease.

She was very aware, that language is a vital human expression and is not something taught by another, but something created by the children themselves. It is the educator's task to facilitate the process of creation by providing, rich, precise and abundant language for children. The educator provides language, which is intelligent and has the content for expressing human sentiment. With this background the Montessori materials become significant for the child, because their function is to isolate certain universal elements, common to all languages. All words are composed of sounds, which can be made visible with the written signs. In all languages different words have different functions, and sentences have structures that make the action the basis of the sentence.

These materials (the moveable alphabet, sandpaper letters etc.) bring to the children an awareness of their mother tongue, which is such an essential part of their fundamental being. They lead to effortless coherence of common facets underlying

[Faint, illegible handwritten text, likely bleed-through from the reverse side of the page.]

the universal phenomenon, that is language and provide potential ease and interest in gaining other languages.

Any environment has a tremendous impact upon the creatures living within it. Biological science has well confirmed how dramatically the environment acts upon the lives and forms of creatures, changing or reconstructing them.

When focusing on man alone, it is possible to see that rather than adapting to the environment, he creates an environment to suit himself. Man lives in a social environment, and within this environment certain determinative spiritual forces are at work.

*"The interrelationship among men
Which constitute their social lives
The man who does not live in an
Adaptive environments can neither
develop his faculties normally nor
learn to know himself."*³

One of the most important principals of modern educational theory precisely deals with the necessity of developing the social instinct of the child and encouraging his drive to live with his peers.

However Maria Montessori recognised that there was no environment into which children can fit, simply because they live in a world saturated with adults. As a result this has certain characteristics and consequences in the lives of modern children. If a child is in an environment in which the objects that surround him differ in size, the child does not see the connection between himself and the objects. As a result he is not able to achieve a natural development.

³ Montessori, Maria, The child in the family, The Clio Montessori Series Volume 8 1995, Oxford England, page 41.

CHAPTER 2

2.1 THE CHILDREN'S HOUSE

The environment Maria Montessori prepared suited the child's size, energy and his psychic faculties. It allows the child to have liberty. This was a remarkable step forward for the educational problem, For it allowed children to develop a social instinct, which would encourage them to live with their peers.

This prepared environment is known as the "children's house". It offers the child a chance of developing his activities. This type of school is not a fixed type. It is a real house in which the children are the masters. For one to fully understand and appreciate the intellectual labor, and the inventive genius which has been put into the construction of the Montessori classrooms (children's house), it is necessary to personally go and visit such surroundings and observe the set up and the children interacting within the prepared environment. I visited different Montessori children' houses, which were educating pre scholars, aged three and four. These schools were well recognised by the A.M.I.

These included The Montessori School Dominican Convent, Dun Laoire, and the Montessori school in Rathfarnham.

In each school I made personal observation's, and recorded information visually, analysing the interior, the materials and the teaching methods applied within the various schools, aiming to envisage the optimum environment suitable for educating young children.

Overall each of the Montessori schools had very similar layouts. Fig. (1) is an excellent example of a fully equipped Montessori classroom. This is the central and principal room of the building. It is at the disposal of the children; the room is specifically designed for intellectual work. The construction of this room is scientifically and methodologically created based on her method the motor, sensory



Fig. (1)



Fig.(2)

A PREPARED MONTESSORI ENVIRONMENT.

and language education. The classroom itself is clearly constructed to suit the needs of the proportions of the children, not of adults. Cupboards around the walls, chairs and tables are all "Lilliputian scale" The cupboards are so low that they only come up as far as my knees. The cupboards are placed along the walls of the classroom. The shelves are loaded with a wide variety of specifically constructed didactic materials. Each of these has their own place on the shelves and their own educational functions. The classroom is designed to educate the children in the following areas, which in turn allows the Montessori technique to work, Practical life, Sensory materials, Language, and arithmetic.

2.2 PRACTICAL LIFE.

When I entered the classroom, my first observations of the surroundings were that of a warm, welcoming attractive and clean environment. As I observed, quietly taking note of the children's activities I soon noticed, the order and cleanliness within these surroundings was due to the children themselves. This was part of the Practical education. The whole environment at some stage or another would be of use to the child's mental and social developments. The children's care and management of the environment itself afforded the principle means of the motor education. However they are provided with objects which are used for practical life. These have no scientific purpose. They are objects used where a child lives, and which he sees employed in his own home.

The furnishings alone are designed to educate the child's practical education. The bright colours and shiny surfaces reveal stains Fig. 3. The teacher explained to me that the furnishings must be washable. This is not for hygiene reasons alone, but the main motive is to supply the children with an occasion for cleaning. The children very willingly clean with ease, due to the materials supplied, in the prepared environment. This allows the children to pay attention; wash off marks, and as time goes by they become very responsible for cleaning everything around them. The cupboards are all painted beautifully in bright pinks, yellows and bright blues. The attractive cupboards encourage the children to respect them; hence they want to keep



Fig.(3)

LILLIPUTIAN SCALED FURNITURE, PAINTED IN ATTRACTIVE
BRIGHT COLOURS.

the furniture clean. Through cleaning activities the children naturally develop their muscular movements. Another important design feature of the furniture is that it is easily tipped over, and when dragged over the floor it reveals very noisy sounds. This is designed; to make known to the child any abrupt motion will cause a disruptive sound, and also allows the child to be aware of his clumsy and imperfect movements. They are especially made to a size that the child can use. Fig. (4) and (5) are examples of shelves containing practical materials. These include a dustpan, dust brush, scrubber, duster cloths and other practical life items. The practical life shelves also contain some precious and fragile items as can be seen in Fig. (6). These are glass jugs and dishes. Many adults would consider it foolish to allow children handle such objects. They would immediately ask, "why put precious objects such as these at the disposal of young children of three and four, surely they will break them"? . However through doing this, they are placing more value on the glass object, than on the physical education of their children. As I observed the children, it was obvious that they respected the objects and handled them with extra care.

It is imperative that the child is able to use everything he comes in contact with in his surroundings. I also noted that the children were able to do tasks of everyday life. Fig (8) is an example of the list of different duties that the children must carry out throughout the day. Sweeping, tidying bags, cleaning tables, watering plants, are included in their daily duties.

Accordingly the objects about the children have to be practical, solid, and look attractive to him. Everything is beautiful attractive and pleasant in the ideal Montessori environment.

In the children's house, the pupils behave and seek to control their movements and begin on the path to perfection, without any adult interference. This allows the child to experience a new dignity and joy within. In this house, the children are growing without a doubt. They are exercising themselves in the things they must do, consequently, they are developing. The children in these schools are delighted to wash their own hands and clean tables. In Fig. (9) and Fig (10) I closely observed a young child and was amazed. Firstly, of her own accord, she dressed herself in an overall, to protect her clothes. Then she went towards the practical setting in the

Fig. (4)



PRACTICAL LIFE SHELVES CONTAINING, DELICATE OBJECTS



Fig. (5)

Fig. 6



Fig. (7)



Fig. (8)

Fig. (9)



Fig.(10)

classroom, where she was able to reach a brass bowl, cloth and a small glass container of polish. She carefully brought them over to a free table space where she commenced cleaning and shining. It was obvious that she was thoroughly enjoying herself, for she was totally absorbed in her work. Thus she was learning to control the muscular movements in her arms. She did not finish until she had the object gleaming clean. When she had this finished; she was utterly pleased and very satisfied. All the while, another younger child worked with a miniature kitchen drawer, where she began to arrange the cutlery into their correct sections. She put all the spoons in one section, and she gathered all the knives placing them in their proper section felt this was an excellent opportunity for the child to improve her practical skills. The children showed an obvious delight in cleaning and shining objects, and organising cutlery, not so much for the pleasure of washing or organizing itself, as for the work that is necessary for completing an action. Therefore action is life and this is the source of their powers.

When children want to do practical tasks by themselves, they become completely cooperative, lively and happy. It is important to think of neither what happens to the child, who is closed up in a house where there is nothing but things he must neither break nor soil, as is all too often the case in many environments children are exposed to. Here the child can not practice and exercise mastering over himself, to learn the use of the common objects of daily life. Immediately the child is deprived of much necessary experience and his life will always manifest this lack.

Fig (11) and Fig. (12), are also examples of the didactic materials, which are to encourage the child for practical life activities, such as caring for himself. In Fig. (11) the child is working with a dressing frame. As I observed the child, he went up to a shelf onto which a collection of frames were hanging. These frames have pieces of materials and leather attached to them. They can be hooked, buttoned and tied together.

The child chose a frame, which contained the button fastenings. He brought the frame over to a table and repeatedly fastened and unfastened the buttons. He continued this exercise many times over. As I observed, I could see he was acquiring skill and



Fig. (11)

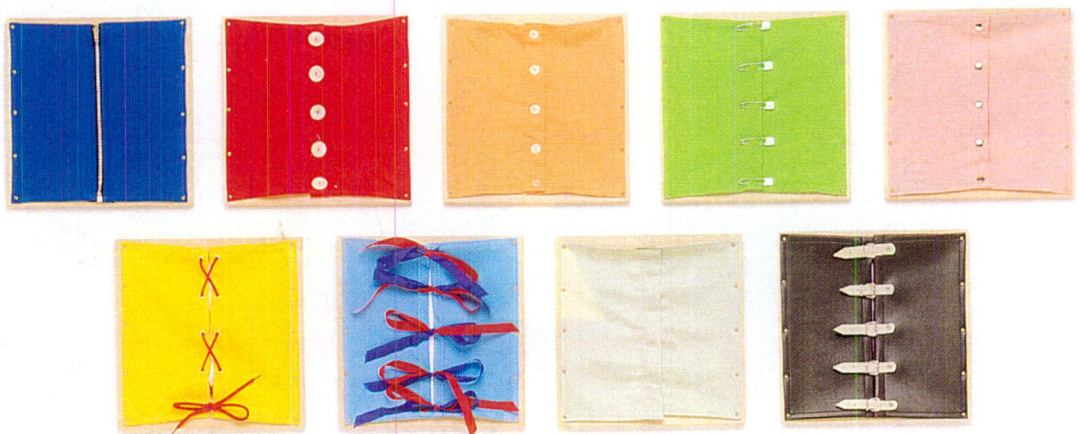


Fig. (12)

control with his hands. The directress explained to me, that this would create within him a desire to fasten real clothes whenever he could get the opportunity. This exercise allows the child to become more independent, For he is learning how to dress and undress himself. This is a fundamental quality in the practical materials designed by Maria Montessori. In educational environments such as these children are developing on their own, without the immediate help of others. True independence is a gradual development. The child is learning to feel, think choose and in general act freely within himself.

In Fig. (1) and Fig. (2), it is possible to see that the room is very spacious. This is excellent for the children because it permits them to move freely throughout the room practicing gymnastic exercises. This is a very important part of the Montessori method of education. The line is painted onto the floor in an elliptical form. Firstly the directress teaches the children to walk upon these lines like tight ropewalkers, placing their feet one in front of the other. To keep their balance they make efforts exactly resembling real tight ropewalkers. The children balance themselves and continue to walk around, watching their feet. Through doing this exercise they learn to master their balance, and bring the act of walking to a remarkable standard of perfection. In addition to security and composure, in their natural stride, they obtain an unusually graceful carriage to their body.

The mechanisms of adaptation are still in place and the exercises of practical life, which are the ground of the Montessori environment, provide the children with a sane and healthy range of activities. This allows the children to develop control and coordination of movement, awareness of their environment, orderly thought patterns, independent work habits, responsibility, and many other human characteristics, which can only be obtained by spontaneous, purposeful work.

2.3 THE SENSORY SECTION

As I have already mentioned the sensory section is a very important part of the Montessori education, therefore it is very important to observe the children working with the sensory materials.

Fig. (13) is an example of a child working with the sensory materials. This child is a new member of this Montessori classroom, and therefore needed the aid of the teacher to direct him in his actions. The child is working with the second box of colour tablets Fig. (14). The first box in this series introduces colour to the child and refines his chromatic sense. It consists of a pair of the primary colours, secondary and tertiary colours. However the child is using the second box, which contains 22 tablets, a pair of each, red blue, yellow, orange, green, purple, brown, pink, gray, black and white.

As I observed the exercise, the teacher chose four colour tablets from the box. These included white, yellow, orange, and blue. The directress prepared and mixed up four pairs. Then she took one red tablet and indicated to the child that he must choose its counterpart from the heap. This was done, and the child began to lay the pair together at the top of the mat. Following this, she then proceeded to take a blue tablet, and handed it to the child. With this he formed another pair by choosing the blue counterpart. Likewise the child formed another by choosing the yellow tablet counterpart. After this exercise was complete, the teacher then mixed the colour tablets, and the child began to exercise again except this time on his own. He continued to pair off the different colours. The child selected the white tablet, and placed it on top of the mat. Having formed a pair through selecting its counterparts from the bunch of mixed coloured tablets. He proceeded to pair off the remaining colours (yellow and orange etc.). As I observed the child continuously repeating this exercise, I noted he was giving practice in recognising the identity of the pairs of colours. I also noted that the child's hand was further being educated to perform fine and delicate movements. His mind is afforded special training in attention. He must not be allowed hold the tablets in any old way. He avoids touching the coloured part



Fig. (13)

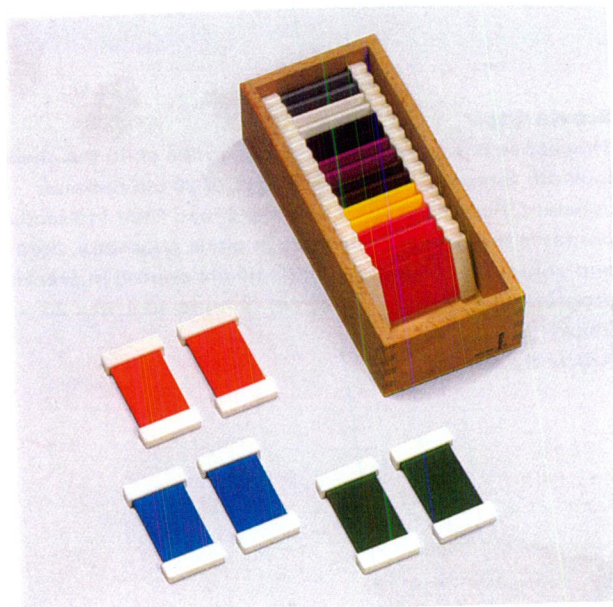


Fig.(14)

of the tablets, by holding the pieces of wood at the top and bottom of the tablet. The child arranged the tablets next to one another in a beautiful straight line, at exactly the same level as can be seen in fig (13). This act itself demands a manual skill, which is brought about after continual practice and repetition. All the children within the classroom are fascinated and absorbed when using the materials within the Montessori classroom. They keep repeating the exercises again and again, sometimes day after day. In doing this they demonstrate a concentration which is truly amazing at such an age. It is not the mere achievement of the external end, which allures and interests the child. If it were he would not keep repeating it. The Childs interest has something biological about it; the child thoroughly enjoys himself because it is the joy of self-creation, the work of building the adult to be. As the child repeats the exercises what I found fascinating about the sensory materials was that in every one of them, they contained within themselves fundamental qualities, such as activity. Not only are the colour tablets (and all other sensory materials in the Montessori environment) aesthetically pleasing, inviting the child to use them, but they also give the child an opportunity that it affords for action. This is saying, that it is not enough that these attractive objects should be interesting in themselves, but they must also lend themselves to the motor activity of the child. In other words they must create in the child a desire to be active. What is the use of an object being beautiful alone? Attractive pictures may arouse a childs interest, but if the child simply looks, smells, touches the picture and dares not move it, his interest will be shallow, and will pass from object to object.

The colour tablets are only one of the many sensorial materials. The materials comprise a series of objects, which are grouped together according to some physical quality. The colour tablets are a series of tablet representing different shades of colour. There are also other materials, which represent other physical qualities such as shape, texture, sound, weight, temperature and so forth. Every single group of objects represent the same quality but at different degrees. There is constantly a gradual difference between the various objects and, when this is possible, one that is mathematically fixed. Every series of objects, is graded so that there is a maximum and a minimum, which decides its limits. For example in fig (13) the young boy is grading four colour tablet pairs at the top of the mat. He started with the lightest

colour (white). He then continued to place the second lightest tablet pairs (yellow) next to the white pair. Likewise he placed the third lightest colour (orange) next to the yellow. He continued until he finished the exercise by placing the darkest colour (blue), at the end of the line. This exercise clearly demonstrated to the child, the difference that exists within the series, (the contrast between the darkest and lightest colours). Sharp contrasts such as these make their difference evident and arouse the interest of the child.

2.4 THE MATHEMATICAL MATERIAL

When I first entered the classroom, the mathematical materials were the most glamorous Fig. (15) and Fig (16). They are beautiful, showy and in their simplicity supremely intelligent. They give the children a sensorial experience of the abstractions that is mathematics, allowing them to store concepts so that when the time comes to deal exclusively in abstract terms, the understanding is already there.

Fig. (17) and Fig. (18), are examples of the mathematical materials. This material is called the Spindle Box. It consists of one large box and one small box. The large box has ten compartments, with the numerals 0 to 9 printed over each compartment. The small box contains 45 loose spindles. I closely observed the child as she began the exercise. The child removed all the loose spindles from the box and placed them on the ground beside her. Then she commenced. Firstly she left the first compartment empty, above which the number 0 was printed. Then she continued by placing a spindle in the second compartment, over which the number 1 was printed. In the third compartment she placed two spindles, and in the fourth compartment she placed three spindles. When she finally came to the last compartment, (nine), she began to count the remaining loose spindles. But she discovered there were only eight spindles left. Hence she had made an error in the exercise. The child knew she had made some mistake, because there should have been the exact amount of spindles for each compartment. However she was one short. As a result, she started the whole exercise again, carefully checking each compartment. When she checked the compartment over which seven was printed, she realised that the error had been made there. She



Fig.(15)

THE ARITHMETIC SECTION WITHIN THE PREPARED MONTESSORI ENVIRONMENT.



Fig. (16)



Fig. (17)

SPINDLE BOX



Fig. (18)

**DIRECTRESS QUIETLY OBSERVING THE CHILD WORKING WITH
THE SPINDLE BOX.**

had eight spindles placed within this compartment instead of seven. She proceeded to complete this exercise correctly, finishing with nine spindles in the final compartment this was an excellent exercise for the child because the material contained within itself a control of error. This control of error is in all the materials within the environment. It made the child use her reason, critical faculty, and ever increasing capacity for drawing distinctions.

Fig (20) is another example of the mathematical materials. These are called the coloured rods. It consists of ten wooden rods, which are divided into units often by altering colours of red and blue. They progress in length, in ten equal steps from 10 cm to 1 meter. The material also comes with a smaller box, containing printed numerals. In fig (19) the child began the exercise, by putting the rods in order of gradation. He began with the first unit. In front of this unit he placed the printed numeral one. The second rod is double the first, and the third is triple the first and so forth. While the scale increases by ten centimeters for each piece, the other dimensions remain unchanging. When the child had successfully completed the exercise, the teacher stood in for a moment. She asked the child to pick out the number four. The child presented the teacher with a rod, which is inflexible; (it is an object complete in itself, yet composed of four equal units that can be counted).

The rods give the child a clear idea of number (because the number was named to the child it existed as an object a unit in itself). Then the teacher asked the child to add the numbers four and two. When the child began to add the two and four he placed the two objects next to one another, one of which have four equal lengths and one, which has two. On the other hand in ordinary schools, the children are given various materials such as blocks, marbles beans etc. When the teacher asks the child to count four and two, the child will take a group of four tablets and add a group of two to it. The natural impression the child will form in his mind is not that he has added $4 + 2$, but that he has added $1+1+1+1+1+1$. This outcome is not clear, and the child must try to make an effort of holding in his mind the idea of a group of four objects as one united whole, corresponding to a single number, 4. This requires so much effort and can often hold a child back from grasping his understanding of numbers by months and sometimes even years.

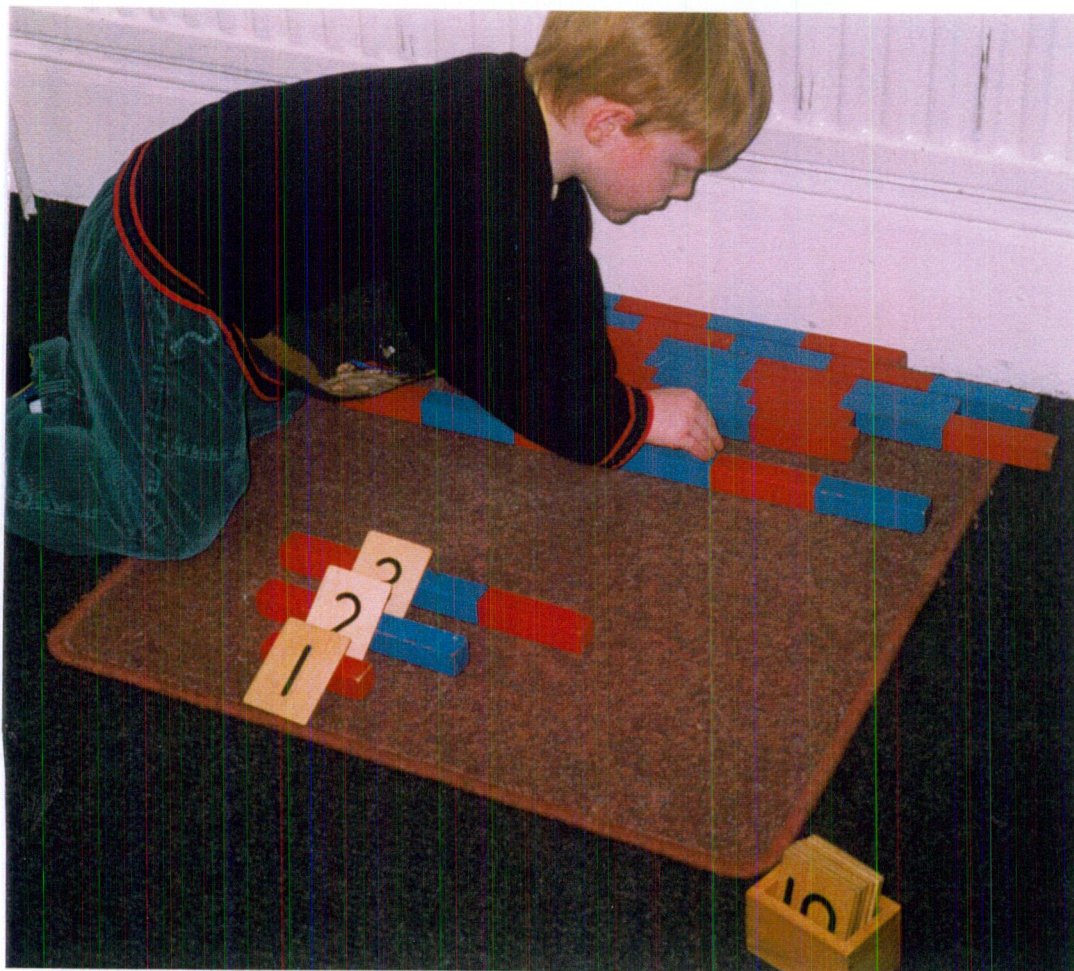


Fig. (19)

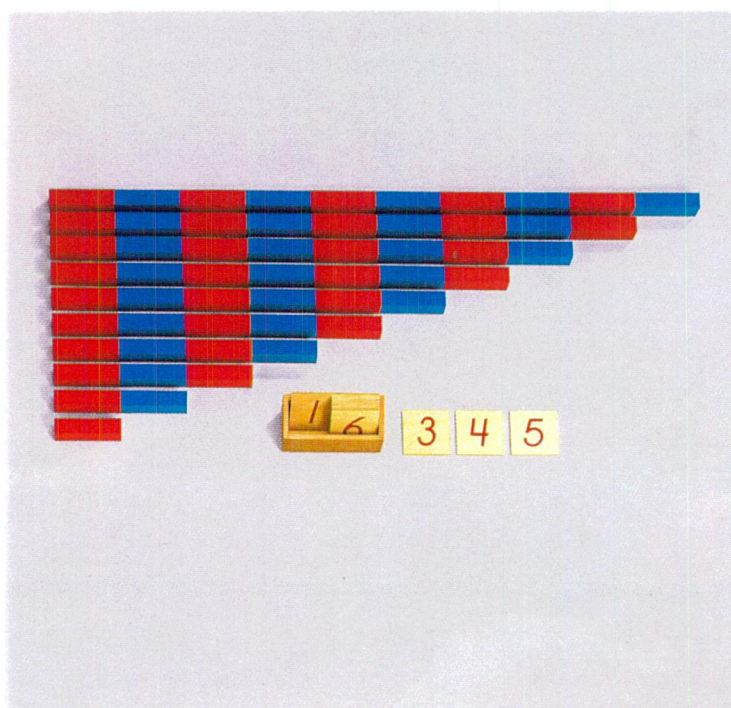


Fig. (20)

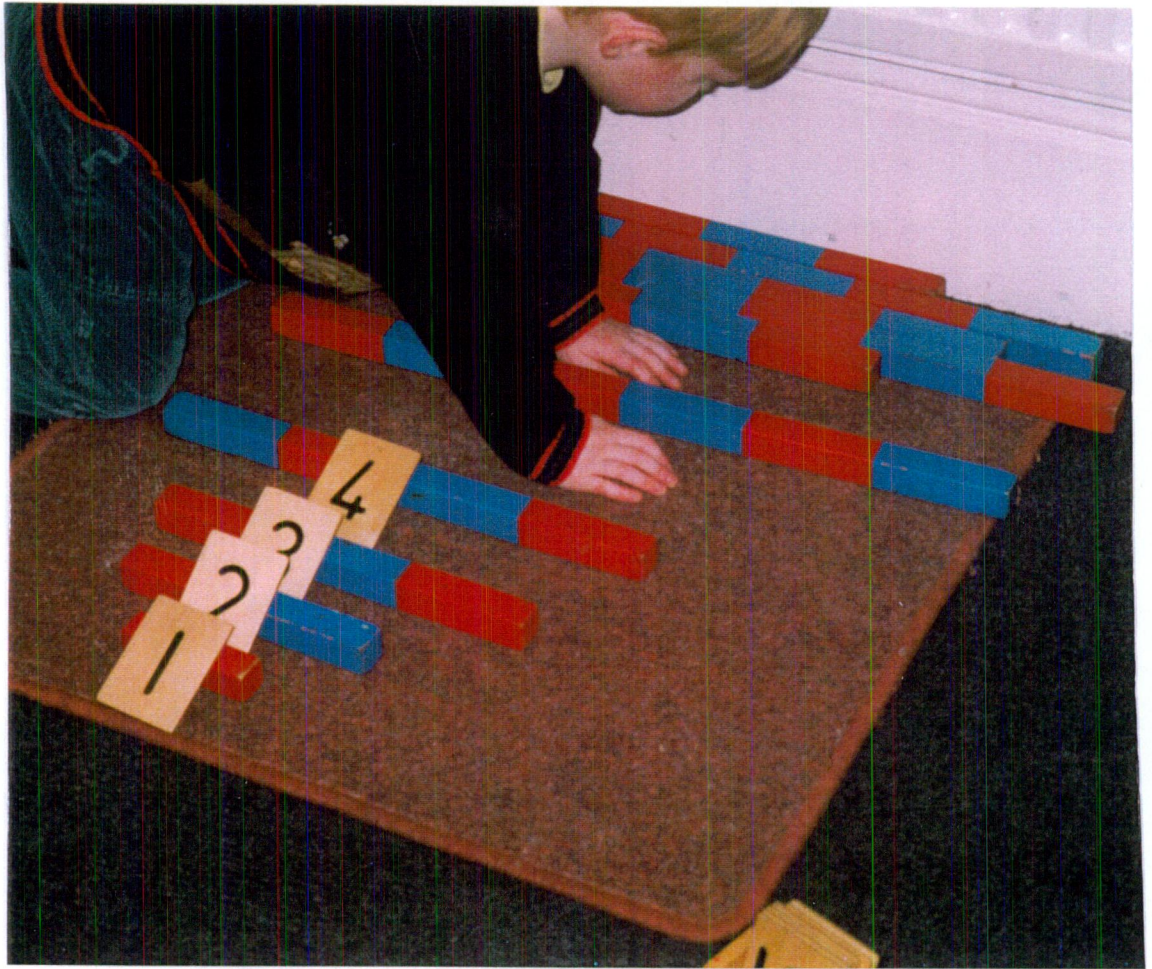


Fig. (21)

COLOURED RODS.

2.5 THE MATERIALS USED FOR LANGUAGE EDUCATION.

The language materials have some essential points in common with the sensorial materials. Most outstanding is their simplicity and the fact that they provide keys for the children to discover something that is beyond what lies on the surface.

In Fig. (23), the child is working with the sandpaper letters; this is an example of the language materials. Each sandpaper letter is in a box, with the consonants on boards painted pink, and the vowels on boards painted blue. I observed the child as she touched over the alphabetical signs as though she was writing. She touched them with the tips of the index finger. The teacher herself touches the letters to show the child how the movements should be performed, and the child copies her, with pleasure and ease. When the child is performing this exercise she is preparing for herself, a remote motor skill for writing. This exercise will obviously take away a lot of the strain that would be imposed on a child, if she were set to write directly without any other previous motor education of the hand. Unfortunately this tends to happen in ordinary public primary schools.

As the child repeatedly touches the letter, the teacher pronounces the letters sound "V", and then she encourages the child to begin to pronounce the letters sound "V". The child proceeds to continue the exercise alone. As she repeats the exercise, the child finds great pleasure in touching the sandpaper letters. She therefore establishes the movements necessary for tracing the alphabetical signs. Simultaneously she retains the visual image of the letter. This process is very successful, and the child is able to master it with ease. It prepares the child for its first form of writing and reading of the alphabet. The child learns the necessary movements for writing; then she can write at this very early stage.

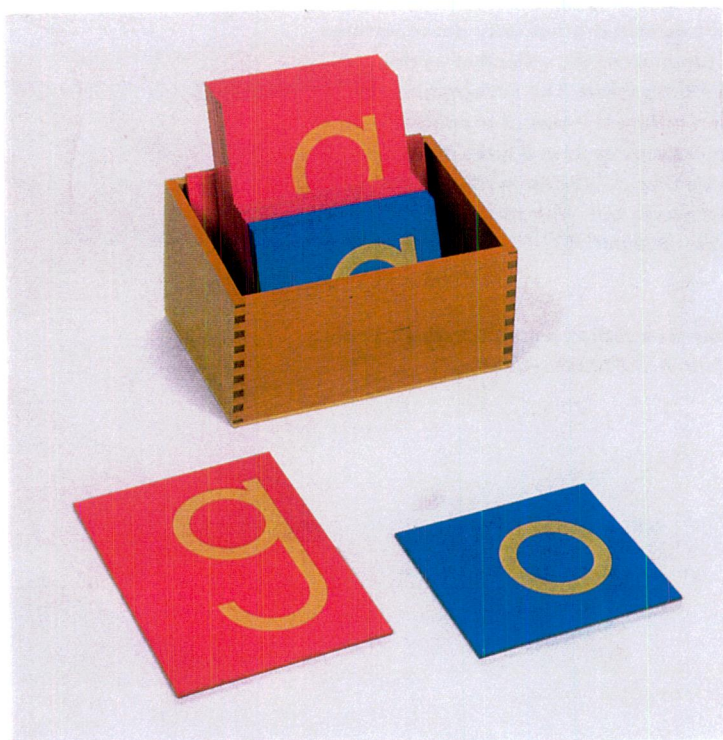


Fig. (22)



Fig. (23)

CONCLUSION

Montessori methods and materials have spread worldwide. The educational programs which appear on television, such as Barney, Sesame Street and Bosco, have adapted her audiovisual and "hand to mind" methods. On the whole, schools are no longer dreary dull abnormal habitats, but have adapted more child-centred environments, much of which is credited to Dr. Montessori. However from my own personal observation of ordinary public primary schools, I feel that many beneficial adjustments could, and should still be made. There is a lot of space for improvement in the educational system, which is being used in conventional education. This can be done through simply adapting Montessori methods of education, which includes a trained director and prepared environment, containing the didactic materials.

The directress prepares the environment for the children in Montessori schools. She organises it to suit the particular age group, which is three to four. She sees herself not as an instructor, but as someone who aims at giving directions to a child's own power, and encourages each child to take full advantage of the freedom offered by the prepared environment. She demonstrates to the child frequently, and on an individual basis the uses of the sections of equipment. She considers through her observation, what is appropriate to the child's level of development, thereby helping him to reveal the powers of an insatiable independent learner. He is then free to use with the minimum of teacher intervention his new developed skills. On the other hand, in ordinary primary schools, this is quite the opposite, for the teacher must teach at least 20 children all at once. It is most unlikely that the children will receive any individual teaching. The teacher plays the main role in the class. She try's to focus all the children's attention on her, making all the orders, instructing the children on what they are going to learn and what behavior she considers appropriate. As a result children in public primary schools are confined to sitting quietly and immobile in their seats. The teacher encourages the children to be motionless, quiet, and

refined. Such methods have severe results, because children begin to learn to be waited upon, unquestioningly allowing others to make decisions for them. However in the Montessori environment the children are given guided liberty, because the environment is prepared to allow the child to do so. The children develop, self discipline through life experience, rather than having an immobile static environment, so unnatural to the very existence of the child. The Montessori environment is suited to the liberty of movement. The child's most important instrument of learning is movement especially that of the hands. At all times and particularly in the classroom, the child therefore must be given the opportunity for meaningful activity. Through repeated exercise, which demand a mental effort, the child's will is strengthened leading to self-discipline, and preparation for intellectual achievement. The prepared environment is key to the success, of the Montessori education. Infant classes in particular have adapted the Montessori environment, where furniture adequately suits the development of the small child. Even now, children in the Department of Education Schools do not get the total freedom of the Montessori environment. It is not practical that they should, because children have books on the curriculum which teachers are required to teach by the end of each term. If children chose their own pace to work at, it would not be possible to ensure that everyone finished each book, before the end of the year. Unlike contemporary education in Montessori schools, no one teaches. The educator is a directress, who creates an environment, where the children learn spontaneously through their own work. She allows the children to teach her. The Department of Educational schools also lack the ingenious Montessori learning tools, which are the "original teaching machines" for young children, designed to develop and refine the child's visual, auditory and tactile perceptions. The teaching materials providing children with incentives and opportunities for purposeful movement in key areas of his developmental and cultural needs. The equipment is basically self-corrective, allowing the child to make independent progress, at a pace suited to his abilities and without undue intervention from the directress. There is a huge difference between both systems. The Department of Education curriculum has set rules and regulations as to what

the child does, and does not learn. In Montessori schools children by and large manage themselves and give the signals as to when they are ready to move on. The directress simply monitors the child, keeping an individual progression record.

Finally Dr. Montessori founded her method, because of her deep understanding of the nature of the child. By giving freedom to the children, in a specially prepared environment, the child's whole personality develops not merely his intellectual faculties but also his powers of deliberation, initiative and independent choice, with their emotional complements. By living as a free member of a real social community, the child is trained in those fundamental social qualities, which form the basis of good citizenship.

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Interviews.

I interviewed Denise Walsh (fully trained Montessori, directress), and observed children within their own educational environments, In Montessori School Rathfarnham, Dublin 16. 9/10/98.

I interviewed Aileen Miller, (Fully trained directress of Montessori school), Observing the children interacting with the materials that are placed within a

prepared Montessori educational environment. On two different occasions and I took photographs of the environment and the children interacting within them.

Dominican Convent, Dun laoire, Co Dublin. 15/10/98.

Interview on the 13/9/98, with Mrs Cleay Former Directress of A Montessori School.

14/9/98 I visited a national primary school Scoil Santain Avonbeg Tallaght, Dublin 24, which is run by the Department of Education. I interviewed Aine Bhreathnach the Primary teacher, who teaches infants, aged 4 . I asked her brief questions about the present curriculum being used at present in National Primary Schools. I also observed the educational environment (the classroom).

