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A MODERN APPRAISAL OF THE
MONTESSORI METHOD

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John Dewey once said, "The world, as far as the external environment is concerned, has forgotten the child."¹ Although the child has been called the most valuable resource which we have, he does not achieve a major status in our society until the post-adolescent age. The adult has used the

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in the future." Indeed, the values of civilization itself have been built essentially around the adult's world.

But, our children are born into an environment which is not constructed by and for the adult.

He [the child] is the prisoner of a civilization that has been built up by adults for the good of adults, and which tends to grow more and more restrictive and to leave less and less room for the freedom of the child.²

There are many examples which show how profound a mistake has been made in the ordering of a child's life and how the adult,

¹ Maria Montessori, What You Should Know about Your Child (Adyar, India, 1961), p. 3.
² Maria Montessori, The Child, (Adyar, India, 1961), p. 7.
 J. P. Standing, Maria Montessori, Her Life and Work, (New York, 1957), p. 255.
 Ibid., p. 31.
 Maria Montessori, Secrets of Childhood, (New York, 1936), p. 10.

The Century of the Child

John Dewey once said, "The world, as far as the external environment is concerned, has forgotten the child."¹ Although the child has been called the most valuable resource which man has, he does not achieve a major status in our society until the post-adolescent age. The adult has had the tendency to regard the child, not as an individual as such, but as a "future being", as one "who is to become".² Childhood has been considered merely a stage through which the individual must pass in order to become an adult. At the present, so the adult believes, the child is an unproductive member of society because he contributes nothing of economic or social value. His real value lies in the future.³ Indeed, the values of civilization itself have been built essentially around the adult's needs.⁴

Thus, our children are born into an environment which has been constructed by and for the adult.

He [the child] is the prisoner of a civilization that has been built up by adults for the good of adults, and which tends to grow more and more restrictive and to leave less and less room for the freedom of the child.⁵

There are many examples which show how profound a mistake has been made in the ordering of a child's life and how the adult,

¹ Maria Montessori, What You Should Know about Your Child (Adyar, India, 1961), p. 5.

² Maria Montessori, The Child, (Adyar, India, 1961), p. 7.

³ E. M. Standing, Maria Montessori, Her Life and Work, (New York, 1957), p. 253.

⁴ Ibid., p. 81.

⁵ Maria Montessori, Secret of Childhood, (New York, 1936), p. 86.

anxious to do what is good for the child, actually goes counter to his needs.⁶ This mistake has occurred through the misunderstanding by the adult of the true needs of the child. For example, an adult may watch the slow, painstaking process of a small child as he works to tie his shoelace. The time consumed for the completion of this one simple task by the child may often cause the adult to impatiently push aside his efforts in order to get the job done quickly himself. Or, an adult may observe a child laboriously fill a pail with sand until it is completely full only to empty the contents to begin again. The child may repeat this act several times under the bewildered gaze of the adult who cannot comprehend the pleasure which the child receives from this seemingly meaningless task. Protests by the child if adult intervention occurs is unexplainable to the adult and regarded as "naughtiness" on the part of the child.⁷ The conflict and misunderstanding involved in the relationship between child and adult has caused the science of child psychology to become increasingly important since the latter part of the 19th century.

At the beginning of the 20th century, however, there was a new voice heard and this voice insisted that child psychology be "radically revised". Instead of studying the child as an individual, child psychology analyzed the external aspects of the child. The result of such studies was merely a sum

⁶ Ibid., p. 88.

⁷ Ibid., p. 105.

of characteristics rather than an idea of a true personality.⁸ Maria Montessori was the woman who made this bold declaration.

Born in 1870, Montessori was to become a figure known throughout the world for her conception of the child and his education. Through her work, which will be described in Chapter 2, she "discovered" that the child has a greater potential than ever suspected by scientists or educators. The psychic development of the child begins at birth, not at the age of six when formal schooling begins. This fact is often overlooked by parents who are eager to cater to "the vegetative life of the child"--sleeping, eating, resting--but are unaware of the mental needs of the young child.⁹

Montessori believed that a thorough understanding by the adult of the child's psychic development would help to solve the conflict in the adult-child relationship. The adult environment is unnatural for the child because his aims differ from those of the adult's. "...the adult works with an external aim, to accomplish some change in his environment...".¹⁰ A person who accomplishes a job quickly and efficiently is one who receives the praise of his fellow man. This is not so with the child. "He seems in no hurry to finish his work, and will repeat it quite uselessly it seems to us," as exemplified in the work of the child who repeatedly fills the sand pail. But it only seems useless to us because we are judging the child's work by our adult standards.

⁸ Ibid., p. 125.

⁹ Montessori, The Secret of Childhood, p. 86.

¹⁰ Standing, p. 142.

"The aim of the child's work is not external but internal. He works in order to grow". Therefore, you cannot visibly see the end for which he is expending all these labors. "We may say that the adult works to perfect his environment, whereas the child works to perfect himself, using the environment as the means."¹¹ What is the child's work according to Montessori? The creation of the adult. From the child has come our personality, our humanity--the child is the constructor of man.¹²

Montessori declared that the idea of education prevalent in her time was detrimental to the development of the child. The adult's role in education was considered to be one of aiding the child in mental development through imparting knowledge to him. The period from birth to three years was neglected, consequently, because educators took into account only that part of life in which it was possible to convey information to the child.¹³ Till recently even children from four to six years were eliminated from education on the ground that they were too young to be taught. Teaching was made identical with education.¹⁴ The role of the adult in education of the child is certainly important, but the adult cannot with his own efforts create a man. "That is the most important side of the whole educational question: what the child himself accomplishes of his own power and not what

¹¹ Ibid., p. 143.

¹² Montessori, Reconstruction in Education, (Adyar, India), p. 2.

¹³ Montessori, What You Should Know, p. 24.

¹⁴ Ibid., p. 25.

adult man can do for him".¹⁵ The child through absorption and assimilation from his environment creates and builds his future self. It is on the environment that man must set to work to enable the child to manifest himself freely.¹⁶

The environment is fundamental. In Montessori's words,

...it must facilitate the expansion of the being in process of development by the reduction of obstacles to a minimum and must allow free scope for a child's energies, by offering the necessary means for the activities to which they give rise.

The adult, being an essential part of the child's environment, must adjust himself to the child's needs, if he is not to be a hindrance to him.¹⁷ Montessori suggests several ways to ameliorate the child's environment by reducing the obstacles which adults unknowingly place before him. One of the first essentials for any adult who wishes to help small children is to learn to respect the different rhythm of the child's life from his own. Most adults try to speed up the child's life rhythm in the vain hope of making it synchronize with theirs.¹⁸ With man's obsession with time and using every minute to its fullest, he often loses patience with the slowness of the child when he is absorbed in a task, such as the shoe-tying incident. The child needs time to successfully absorb the result and achievement of every task, no matter how small.

¹⁵ Montessori, Reconstruction in Education, p. 3.

¹⁶ Montessori, Secret of Childhood, p. 126.

¹⁷ Ibid., p. 150.

¹⁸ Standing, p. 145.

Unlike the adult purposes in many cases, the child's joy lies in the act of doing the work and not in the completed task. The adult stops working when he has reached the end for which he set out--i.e., when his job is finished; or when he is too tired to go on. The child's task ends when he unconsciously feels that he has obtained what he needs from that particular activity--for the time being at any rate. A need has been satisfied. Dr. Montessori does not elaborate on this particular theory of the "Cycle of Work" but merely accounts for it as part of the psychic maturation process.¹⁹ This cycle for which the child feels a need may often be interrupted by a well-meaning adult who sees no purpose in the child's activity.

Another danger to the child's development as an individual is the imposition and even the infusion of the adult's will with the will of the child. In the early stage of the child's life, he is a weak creature who is dependent upon the adult for most of his needs. This is a period when the child is extraordinarily open to suggestion since his own consciousness is in the process of formation. Montessori gives the example of a 4-year old who was alone in her own home with her grandmother. The little girl expressed a wish to turn on the tap of a fountain to see the gush of water, but just as she was about to do it, she drew back her hand. Her grandmother encouraged her to turn on the tap but

¹⁹ Ibid., p. 150.

the child answered that her nurse did not allow it. The grandmother tried to persuade her that she herself gave her full consent, pointing out to her that she was in her own home. But though the little girl continued to show an eagerness to see the water, she drew her hand back each time. The sense of obedience to an order from the absent nurse was so strong that the persuasion of someone as close to her as her grandmother could not outweigh that distant force.²⁰

Even in the example cited of the adult interfering with the process of tying a shoelace, there is the element of imposition of the adult's will. Seeing the child make great efforts to perform a totally useless action (according to adult standards) or one so futile that he could perform it in an instant himself and far better, the adult is tempted to help, as though to put an end to a disturbing spectacle.²¹ Montessori states that the adult may even substitute his will for the child's so that it is no longer the child who acts but the adult who acts through him.²² "Who would ever have thought that the useless assistance given to the child is the first root of all repressions and hence of the most perilous injury the adult individual can do to the child?"²³ The child of pre-school age, especially the period from birth to three years which Montessori stresses as one of the most important and neglected periods in man's life, needs freedom from adult restrictions

²⁰ Montessori, Secret of Childhood, p. 108.

²¹ Ibid., p. 103.

²² Ibid., p. 106.

²³ Ibid., p. 105.

in order to carry on the process of creating his personality and developing his mental abilities.

Dr. Montessori declared a need for a new education for the child. It must begin with life itself and must no longer retain the form of mere teaching; for the young child, whose psychic life develops with his absorption of information from his environment, would not benefit from this formal method of the traditional classroom.²⁴ Montessori wrote before her death in 1952:

The education of our day is rich in methods, aims, and social ends, but one must still say that it takes no account of life itself. Among all the many methods officially used in different countries, not one proposes to help the individual from birth and to protect his development. Education, as today conceived, is something separated from both biological and social life.²⁵

Man must take cognizance of the intellectual potential of the young child, for it is the stronger of the species, the adult, who must aid the child in his most important task--the creation of the adult. "To recognize this great work of the child does not mean to diminish the adult's authority." Adults must take the role as collaborators in the building process rather than to be themselves the builders. Once they realize this fact, they become able to carry out their real duties; and then in light of wider vision, their help becomes truly valuable.²⁶

²⁴ Montessori, What You Should Know, p. 2.

²⁵ Montessori, The Absorbent Mind, (Adyar, India, 1963), p. 8.

²⁶ Ibid., p. 9.

"This may be the beginning of a new epoch in education, which will consider how it can assist the life of the child."²⁷ In no previous epoch of history has there come into being so many organizations having as their aim some aspect of the welfare of the child. Within recent times there has been increasing interest in the early education of the child. Dr. Montessori with her theories as to man's early psychic development (discussed in Chapter 2) has had a significant role in the evolving of our modern system of education. Her approach to the problem of early education is unique and controversial. However, her interest lay not only in proposing a new method of education but in making the world aware of the great potential of the child so that in working towards the means by which this potential can be released, the 20th century will truly become known as, in Montessori's words, the Century of the Child.²⁸

²⁷ Montessori, Secret of Childhood, p. 88.

²⁸ Standing, p. 80.

The Montessori Approach

As a young girl, Maria Montessori was sure of only one thing in deciding on her future career--she definitely did not want to teach!²⁹ Her avid interest in the field of science led her to break all traditions in becoming the first woman in Italy to take the degree of Doctor of Medicine.³⁰ Shortly after her graduation from medical school, she had her first contact with mentally deficient children. Through her work with them, she tended to favor the belief that mental deficiency was a pedagogical problem rather than a medical one.³¹

She became intensely interested in this theory and in the work of Edouard Seguin (1812-1880) who was the foremost teacher of mental defectives of his day. Seguin had based his work on the experimentation of another Frenchman, Itard, who had done extensive work in the training of the senses of mentally deficient children.³² Seguin believed that the body and mind in the human being constitute an organic unity and that education should complement the child's organic development. In his opinion, the two areas most crucial to development were the muscular and the sensorial areas; therefore, he developed a method of "physiological education" in which he

²⁹ Standing, p. 23.

³⁰ *Ibid.*, p. 27.

³¹ *Ibid.*, p. 28.

³² Montessori, The Montessori Method, (New York, 1912), p. 34.

devised didactic material to provide sensory training for mentally defective children.³³

Montessori found the opportunity to apply some of her new beliefs and knowledge when she became the director of an orthophrenic school for children in Rome in 1899. She spent her two years in this position observing the children and collecting and analyzing data. Some of her experiments with the education of the "idiot" children had surprising results in that she was able to teach a number of them both to read and to write so well that they successfully passed a public school examination with normal children.³⁴ While everyone was admiring her accomplishment, Montessori was wondering why the normal children in the public schools could be equaled in tests of intelligence by her retarded pupils. After witnessing the success of the Seguin sensorial didactic materials with her children, Montessori withdrew from her work to contemplate the potential of another of Seguin's ideas--applying his physiological method of education to normal children.³⁵ It seemed logical to her that the methods which had been successful with her defectives could be used with normal children in their early stages of development.³⁶

³³ Nancy Rambusch, Learning How to Learn, (Baltimore, 1962), p. 14.

³⁴ Martin Mayer in his article "Schools, Slums, and Montessori", Commentary, XXXVII (June, 1964), p. 34, expressed the opinion that Montessori's "idiot" children were not what we would call idiots today, i.e., I.Q. below 25 and essentially ineducable. Probably, they were retarded (I.Q. 50-75) with a few maybe "imbecile".

³⁵ Montessori, The Montessori Method, p. 42.

³⁶ Montessori, The Secret of Childhood, p. 142.

Again Montessori was presented with a chance to experiment with her ideas. A school was to be established for children between the ages of three to seven in a slum development in Rome. Dr. Montessori was invited to undertake the organization of these infant schools and enthusiastically accepted. In January of 1907, the first Casa dei Bambini, "The Children's House," was opened.³⁷

Within a period of three years, Montessori's Casa dei Bambini had achieved international fame. Everyone from European royalty to well-known educators came to her schools to marvel at her accomplishments. Normal children of three or four years had learned to write and by the age of five, to read. Advanced concepts in arithmetic were acquired by the age of six. Of equal importance with the subject matter learned was the fact that these small children had developed an amazing self-discipline which enabled them to move within their school environment with a freedom and independence hitherto unknown. It seemed that Montessori had discovered the key which unlocked the door to what she later called "the secret of childhood"--the unrealized potential of the child's mind.³⁸ In retrospect, Montessori stated that her method of education was the result of her "discovery" of the child's real abilities rather than the discovery being the product of a pre-determined method, other than her use of

³⁷ Ibid., p. 43.

³⁸ Calvert Orem, 27 Major Elements in Dr. Maria Montessori's Philosophy and Practice, (Corpus Christi, Texas, 1963), p. 13.

Seguin's didactic materials.³⁹ Dr. Montessori's method has a basic triad of three elements: the child, the environment, and the adult.

Montessori's most important theory concerning the child is her theory of the "sensitive periods" of childhood. It was the Dutch scientist, Hugo de Vries, who discovered the existence of sensitive periods in animal life.

These periods correspond to special sensibilities to be found in process of development; they are transitory, and confined to the acquisition of a determined characteristic. Once this characteristic has evolved, the corresponding sensibility disappears. Thus every characteristic is established by the help of an impulse, of a transient sensibility which lasts over a limited period of growth, that is, during the corresponding sensitive period.

Growth is thus not something vague, according to Montessori, but a labor guided by transitory instincts which urge the creature towards certain activities.⁴⁰ One example of this in the insect world, according to De Vries, is the caterpillar stage in the metamorphosis of a butterfly. After the caterpillar leaves the egg, it must feed on very tender leaves in order to survive. However, the adult butterfly lays its eggs near the trunk of the tree. At this time, the caterpillar is strongly sensitive to light and is drawn towards the

³⁹ Standing, p. 35.

⁴⁰ Luella Cole in A History of Education, (New York, 1950), p. 572, states that though Montessori's long training in science was probably invaluable to her in her work the system is not rigidly scientific. It is mainly derived from intuition, shrewdness, and hard common sense.

⁴⁰ Montessori, The Secret of Childhood, p. 39.

area where the light is the brightest--at the tips of the branches where the young, tender leaves may be found. Thus, it receives nourishment and survives. It is a strange fact that after the caterpillar has passed through its first stage and is fully grown, it can eat other food and then loses its sensitivity to light.⁴¹

Through her observation of the children in the "Children's House", Montessori was the first to propose that there are corresponding sensitive periods in infancy and to make use of them from the standpoint of education. If these sensitive periods are ignored, they can never be completely fulfilled during the rest of the child's life.

The axis round which the internal working of the sensitive period revolves is reason. It develops and assumes concrete form from the images the child absorbs from his environment.⁴² Thus, the environment plays an important role in the life of the young child. "By absorbing what he finds about him, he forms his own personality."⁴³ Even in the first months of the child's life before he is able to move, he takes in the whole of his environment by means of the absorbent power of the "unconscious" mind. Montessori refers to the mind of the child from birth to about three years as being "unconscious" because the child acquires knowledge of his environment without willing it and without

⁴¹ Ibid., p. 40.

⁴² Ibid., p. 42.

⁴³ Montessori, The Absorbent Mind, p. 86.

knowing that he is doing so. The child seems to take in these things "not with his mind but with his life."⁴⁴ After the child begins to move, he gradually passes from an "unconscious" to a conscious state of mind as he begins to organize and classify the knowledge already stored in his mind about his environment. The importance of allowing the child to freely move in his surroundings without adult restrictions was incorporated in Montessori's method.

One can go no further without recognizing the emphasis which Montessori placed upon the function of the senses in childhood. In the period of "unconscious" learning of the child, the building of the mind occurs only through the senses, since these organs are the only means by which the infant may ascertain the nature of reality. For example, in what Montessori calls the "sensitive period for language", (4 months to 1 year), the child becomes intensely interested in the human sounds in his environment. The infant will intently watch the mouth of an adult and make "vague soundless words". Within a few months, the baby will speak his first word. He feels a psychic urge and the corresponding activity follows. It is interesting to note that while the acquisition of a language is a long, tedious process for an adult, an infant may easily acquire more than one language during this "sensitive period". The visual and auditory senses are essential in this task. Later in the child's

⁴⁴ Standing, p. 110.

life when the use of the hands becomes the chief means of consciously learning from his environment, all of the child's senses are put into use.⁴⁵

One thing is evident in Montessori's theory of the sensitive periods in infancy: there is no way that a child may be taught directly since the organization of his psychic life in this early period is entirely internal and can be accomplished only by the child himself.⁴⁶ However, since the child is so closely linked to his environment for aid in mental growth, his environment serves as a means by which the child may be indirectly reached. It is with this approach that Montessori had much success.

One of the most important needs of the child in his environment, as determined by Montessori, was the need for order. According to Montessori, the child passes through a "sensitive period" for order beginning about his second year and extending for about two years, being most intense in his third year. During this period the child displays an almost passionate interest in the temporal and spatial order of things in his environment. It seems vital to him to have everything kept in its accustomed place; and that the actions of the day should be carried out in their accustomed routine.⁴⁷ The reason for this need is self-evident. Since the entire content of the infant's mind ^{is} in formed by impressions

⁴⁵ Ibid., p. 112.

⁴⁶ Ibid., p. 111.

⁴⁷ Ibid., p. 123.

received from his environment, the child begins to feel a need, conscious or unconscious, for stability and order in that environment in order that he may organize his psychic life. In the Montessori "prepared environment" there are two types of order: (1) the general order and arrangement of the classroom as a whole--the furnishings and the didactic material (the youngest children find pleasure in maintaining this order themselves--cleaning, tidying shelves, etc.); and (2) the order which is inherent in the didactic material itself.⁴⁸

Another need essential for the child's environment is freedom of activity. Montessori's idea of "freedom within limits" has been very controversial. By this term, Montessori means that the child must be free from any adult intervention within the Montessori classroom with the exception of three events: (1) a child must be prevented from doing anything which will adversely effect the work of another child or the group as a whole; the responsibility of deciding whether the acts of a child will have good or bad consequences is placed upon the directress (Montessori's "teacher"); (2) no child is allowed to choose any piece of material unless he already knows how to use it; the primary function of the directress is to introduce the materials to the child and show him how they are to be used; (3) the child is allowed to use the materials only so long as he uses them for the purpose for

⁴⁸ Ibid., p. 273.

which they were intended.⁴⁹ (These limitations have aroused criticisms which will be discussed in Chapter 3.) The child is free to choose the particular material which interests him or seems to fulfill a certain need for him at the moment. He may work at his own pace for as long as he wishes or stop, put the material back in its proper place, and find something new with which to work, or he may choose to rest for awhile. Before Montessori's work, the good child was equated with the immobile one. Teachers, and adults in general were suspicious of the child having too much freedom in the classroom. Montessori had a reverence for the child's personality, and faith that liberty of action was not only safe to give children, but prerequisite for their growth.⁵⁰

However, even Montessori recognized the fact that children in such a free atmosphere as hers would be restless and disorderly if they did not have didactic materials which would completely absorb their attention. Montessori's materials were devised, changed, and adapted to the children's apparent needs, physical and mental, throughout her many years of observation of young children. Every detail of the apparatus is based on the recognition of the fact that true education must be achieved by the child himself.⁵¹ All of the materials are self-correcting, i.e. each piece of didactic material is constructed so that there is only one way for the particular task

⁴⁹ Ibid., p. 285.

⁵⁰ Carolyn Bailey, Montessori Children, (New York, 1915), p. 124.

⁵¹ Dorothy Canfield Fisher, A Montessori Mother, (New York, 1912), p. 49.

to be accomplished successfully by the child. Thus, instead of the traditional teacher-centered classroom, the Montessori school is a child-centered one.

In giving a brief resume of her didactic apparatus, it may be classified into three groups: (1) material designed to teach practical skills, (2) material designed to train the senses, and (3) material designed to teach skills such as arithmetic, writing, and reading.⁵²

One of the primary purposes of the self-correcting materials was to enable the child to achieve independence from adult assistance. Adults habitually serve children--washing them, feeding them, dressing them--without stopping to think that "the child who does not do, does not know how to do." "It is easier to do these things for the child rather than teaching him to do them for himself, but this is not educating the child."⁵³ Therefore, the first material to which the youngest children were introduced, had a practical value in that it taught either how to take care of the child's own person or to care for his environment. The child was taught the proper way to brush his hair, wash his hands, polish his shoes, etc. Special frames containing two pieces of cloth for the child to practice buttoning together or hooking, lacing, etc., helped the child develop these valuable practical skills. The children learned how to set the table for meals, to sweep the floor, to polish furniture, and numerous other skills. For the children, it was pleasurable activity since they were not acting out the

⁵² Cole, p. 575.

⁵³ Standing, p. 215.

roles of adults but actually performing the same tasks which adults do.⁵⁴

After the exercises in "practical life", the child was introduced to the sensory training apparatus. As previously mentioned, Montessori believed that the senses were important to the child from an educational view point.

The development of the senses indeed precedes that of superior intellectual activity and the child between three and seven years of age is in the period of formation. We can, then, help the development of the senses while they are in this period.⁵⁵

Montessori developed a system of graduated exercises for sensory training.

Beginning with exercises such as discerning between rough and smooth objects, warm and cold water, heavier and lighter pieces of wood, the child proceeded to placing wooden cylinders of various heights and thicknesses into corresponding holes of wooden frames. This exercise involved the child discriminating between cylinders differing only slightly in some respect and was self-correcting since each cylinder had only one hole in which it could fit.⁵⁶ The Tower was a set of blocks graduated in size which could be placed in a pyramidal shape with the child being able to see an error if the even outline of the construction was broken.⁵⁷ A wooden tray with geometrical insets (wooden pieces in the shapes

⁵⁴ Montessori, The Montessori Method, p. 215.

⁵⁵ Ibid., p. 191.

⁵⁶ Ibid., p. 194.

⁵⁷ Ibid., p. 197.

of a clover-leaf, a triangle, an oval, a circle, and a few others) was used to develop the visual, tactile, and muscular perception of the child. The child, often blindfolded in order to more nearly isolate the senses in use, was taught to run his fingers lightly over the perimeter of the wooden piece in order to store this tactile impression in his "muscular memory". Then he would trace the outline of the holes in the tray with his fingers until he thought he had found the one which corresponded with the wooden piece. Differentiation of colors was also practiced. Wooden tablets wrapped in silk thread of eight different colors with eight different shades of each color, were used. The child was introduced to two different colors at a time and then advanced to recognition of the various shades of the colors. Discrimination between shades of the same color became so acute that a child could study the color of one tablet and then walk to another room and pick out the identical color from a pile of various shades of that color. Exercises for development of the senses included also the senses of smell, taste, and hearing.

When Montessori's system first became widely known, there was criticism that her emphasis on the education of the senses was approaching the child on an "animal" level rather than an intellectual one.⁵⁸ Since the child must rely on his senses in the first years of his life, Montessori believed that

⁵⁸ Lillian Maragaret Dent, "Are the Montessori Claims Justified?" Forum, LI, June, 1914, p. 888.

a child whose perceptual skills were increasingly refined by exposure to graded stimuli, would achieve greater sophistication in observation, discrimination, and eventually decision-making than a child who was left to his own devices in a sensorily random environment.⁵⁹ Thus, when the child was ready to make the transition from the concrete to the abstract, he had an ordered content of the mind with which to do so. The sensory training prepared the child for future intellectual development. Indeed, Montessori had many experiences in which children began to recognize by name the various geometric shapes in their environment because of their work with the geometrical insets.⁶⁰ The most famous example of advanced intellectual development derived from the sensorial education was the "explosion" into writing by Montessori's four- and five-year old pupils.

Relying on the principle basic to her method, observation of the child, Montessori decided there were two component parts to learning the mechanics of writing--manipulating the writing instrument and reproducing the flowing movements of the letters. For the child to gain control of the small muscles in his hand, Montessori invited him to place one of the pieces from the geometric insets on a white sheet of paper and draw around it. Then the child filled in this outline with a colored pencil. Gradually the child became

⁵⁹ Orem, p. 11.

⁶⁰ Montessori, The Montessori Method, p. 115.

more adept at keeping within the outline and his strokes became less confused while also becoming straighter. Thus, the child became the master of the pencil.⁶¹ At the same time, he was exposed to the letters of the alphabet cut out in sandpaper and pasted on wood. As the child was shown each letter, he traced its lines from left to right with his fingers while the sound of the letter was pronounced. The letters were script so that in following the lines of the letter, the child could "feel" the flow of movement essential for the time when the letters were put together into words. Vowels were presented first and the consonants were pronounced as a separate sound first and then united with a vowel sound.⁶²

The child could repeat indefinitely these exercises involving the visual, tactile, auditory, and muscular senses. Besides the sandpaper letters, regular cardboard letters were used. A word was pronounced distinctly for the child, such as "mama", and the child would select the cardboard letter corresponding to each sound of the word to compose the word itself. Later the child himself would think of words and compose them with the cardboard, movable alphabet.⁶³ All of this preparation occurred without the child actually writing one word, but he had mastered all the acts necessary

⁶¹ Ibid., p. 274.

⁶² Ibid., p. 276.

⁶³ This particular feat is possible for the young Italian child because each letter of the Italian alphabet has only one corresponding phonetic sound. The American child is not as fortunate in this respect.

to writing, according to Montessori. But at some time, a link between the mind and the senses came into existence-- the child apparently achieved insight into the fact that he possessed the ability to communicate to others with the skills he had acquired and an "explosion" into writing occurred. He picked the nearest writing instrument he could find and began to write on any convenient thing. When this event first occurred, Montessori was as surprised as the children themselves, but she later recognized it as a "natural form of the child's development" due to the sensory exercises.⁶⁴ On the average, a child of four learned to write in six weeks in Montessori's school.⁶⁵

Reading comes after writing in the Montessori system. A child who forms letters perfectly with his pencil and can compose words with the movable alphabet may still be unable to recognize a word which he himself has neither written nor composed.⁶⁶ Montessori said that reading required a much longer course of instruction than writing and required a higher intellectual development because it involved interpreting ideas from graphic symbols.⁶⁷ Following the phonics work involved in the preparation of the child for writing, the preparation for reading begins with the recognition of single words. At first, these are composed with the movable

⁶⁴ Ibid., p. 291.

⁶⁵ Josephine Tozier, "An Educational Wonder-Worker", McClure's Magazine, XXXVII, May, 1911, p. 13.

⁶⁶ Fisher, p. 88.

⁶⁷ Montessori, The Montessori Method, p. 266.

alphabet, Later when the child can interpret readily words composed in this way, they are written in large, clear script on slips of paper. The child spells the word out letter by letter, and then pronounces these sounds more and more rapidly until he runs them together and perceives that he is pronouncing a word familiar to him. If possible, the word is accompanied by a picture of the object which the word names. After single words are recognized, the process is extended to phrases. Here the directress goes very slowly with great care, to avoid undue haste and lack of thoroughness. At first they are not allowed to read aloud because of the danger of their falling into the familiar, mechanical habit of reading aloud a page with facility without comprehending what is read. She first carries on a series of silent conversations with the child, writing on the board some simple request for an action on their part--"Please stand up," etc. Thus, the reading comprehension of the child may be judged. Later, longer and more complicated sentences are written on slips of paper and distributed to the children.⁶⁸ As in the case of writing, the child may not realize at first the significance of these skills until a certain moment when he perceives that, just as writing makes it possible for him to communicate his ideas, reading enables him to receive the ideas of others. This realization is followed by the child's absorption in all reading matter in his environment (shop signs, labels, etc.) and the consequent use of books.

⁶⁸ Fisher, p. 89.

by the Montessori's approach to teaching arithmetic again involved her self-correcting didactic materials. A series of ten rods were used. The rods were divided into equal sections a decimeter in length with the first rod being one decimeter in length, the second rod being two decimeters, and so forth up until the longest rod which was ten decimeters or a meter in length. Thus, when the rods were arranged correctly they formed a staircase outline which made it possible for the child's eye to discern his own error when he had a rod out of place.⁶⁹ With these rods, it was possible to teach the child to count to ten by counting the total number of sections in each rod. Sandpaper numbers were used in the same manner as the letters of the alphabet in order to teach numerical nomenclature. Addition and subtraction were approached by having the child use the rods to compose various problems with the sum of 10 ($8+2=10$, $4+6=10$, etc.) and then to decompose, such as $10-4=6$ or $10-5=5$. Multiplication and division were attempted by the use of the "five" rod to show that two "five" rods were equal in length to the "ten" rod, and that a "five" rod was half the length of a "ten" rod.⁷⁰ Numbers larger than ten were accomplished by adding more rods to the "ten" rod.⁷¹ Games were provided for further exercise such as boxes labeled 0-10 with the child placing in each box the number of objects indicated

⁶⁹ Montessori, The Montessori Method, p. 327.

⁷⁰ Ibid., p. 333.

⁷¹ Ibid., p. 335.

⁷³ Ibid., p. 305.

⁷⁴ "Montessori for Little Folks", The Louisville Courier Journal Magazine, December 15, 1953, p. 24.

by the number on the box. "Zero" was taught as meaning "nothing".⁷²

All of the didactic materials plus the freedom and order inherent in them constitute the second part of the triad--the "prepared environment". The completing part of the triad, the adult, acts as a link between the other two--the child and the "prepared environment". In the Montessori school, the adult is called a "directress" rather than a "teacher" because her function is primarily to guide the child in his work rather than to actively intervene. This function corresponds with the role which Montessori suggests that the adult, in general, must assume in relation to the child in our society. Since the didactic materials are self-correcting, the directress is freed from this task and is able to devote more time to observing the children and responding to their individual needs. The directress must know the general function of the prepared environment and the nature and purpose of every piece of material in it, and the age to which each is suited.⁷³ The introduction to the child of particular didactic materials must correspond with the "sensitive period" through which the child is passing. For instance, according to Montessori, the sensitive age for writing is between $3\frac{1}{2}$ and $4\frac{1}{2}$, for words leading to reading and numbers, it is 4 to 5, and for the refinement of senses and muscular coordination, it is $2\frac{1}{2}$ to 4.⁷⁴

⁷² Ibid., p. 329.

⁷³ Standing, p. 305.

⁷⁴ "Montessori for Little Folks", The Louisville Courier Journal Magazine, December 15, 1963, p. 24.

The role of the directress is certainly just as important as the traditional teacher's role but the adult-child relationship is different. The child knows the directress is there if he needs aid, but the learning which occurs is entirely on his own which is a source of great satisfaction to the child and probably the most valuable type of education he could receive.

The triad is completed when the child, adult, and environment come to one point of contact, i.e. when the directress presents a piece of didactic material to the child and makes sure he thoroughly understands its use.⁷⁵ For Montessori, concentration and absorption with the material was the key to the child's mind. Montessori describes a change in the child's personality which is almost spiritual. Through the spontaneous concentration aroused in the child by the materials, the child is "normalized", thus inferring that children who have not received this experience exhibit behavior which is actually unnatural for them.⁷⁶ Indeed, according to Montessori, children's behaviour which we might term "naughty" is actually a deviation from what would normally be their natural personality if not for the adverse environmental influences.

Montessori lists the characteristics of the "normalized" child as being: (1) a love of order--both external and internal; (2) a love of work--work in this sense meaning

⁷⁵ Standing, p. 239.

⁷⁶ Ibid., p. 174.

any activity which involves the child's whole personality, having as its unconscious aim the construction of the child's self; (3) spontaneous concentration--total absorption of the child in his task, oblivious to external disturbance;⁷⁷ (4) obedience--the child appears to receive joy in willing himself to be obedient to another, the child's own will is involved rather than his being a docile figure; (5) independence and initiative--the child acquires as much independence as is possible for him to acquire at each stage of development.⁷⁸

The last two characteristics are especially important--spontaneous self-discipline and a joy in learning. According to Montessori,

...the dawning of real discipline comes through work. When a child first becomes absorbed in doing something...he has taken his first step on the road of discipline. Every time a child completes a series of co-ordinated action directed toward a given end, every time he repeats his exercises, correcting his own errors, every time he accomplishes something which he has undertaken, he is training his positive will-power.⁷⁹

This is a valuable asset in the child's development. The crowning characteristic of the "normalized" children is the joy with which they do their work in the Montessori school. Visitors to the Montessori schools are struck by the tranquility of the atmosphere and the feeling of happiness which

⁷⁷ Ibid., p. 175.

⁷⁸ Ibid., p. 177.

⁷⁹ Theodate L. Smith, The Montessori System in Theory and Practice, (New York, 1912), p. 42.

⁸⁰ For a full description of the atmosphere and activities of the Montessori classroom, see "A Visit to Lilliput" in Steadman's Marie Montessori, Her Life and Work, pp. 183-200, or The Montessori Method.

seems to radiate from the children themselves.⁸⁰ This joy in learning along with the child's "learning how to learn" are important factors in Montessori's early education program.

Montessori believed that the "normalization" of children must occur before their true education could begin, and her approach to education would make manifest this "new" or "normalized" child whose released potential could possibly change and ameliorate our society.

Dewey's progressive education which swept the country at this time.⁸¹ Dewey's disciples declared her method to be too rigid. It was only in the European countries that the Montessori schools became firmly established.⁸²

However, in recent years there has been an American revival of interest in the Montessori method. The reawakening of interest in Montessori's method seemed to coincide with the reawakening of American interest in the intellectual potential of the young child. If the year 1958 is taken as the launching period for the new Montessori movement (the first "pure" Montessori school was opened in 1958 in Greenwich, Conn.) then it is interesting to note that the revival took concrete form immediately after the launching of the first Sputnik which summoned the Space Age for this nation. With this

⁸¹ "An Intellectual Leap", *New York*, LXI, June 24, 1963, p. 106.

⁸² "The Joy of Learning", *Time*, LXXVII, May 12, 1961.

⁸⁰ For a full description of the atmosphere and activities of the Montessori classroom, see "A Visit to Lilliput" in Standing's Maria Montessori, Her Life and Work, pp. 183-200, or The Montessori Method.

Montessori in the Space Age

In the early part of this century Montessori schools had sprung up all over the world. Her ideas and methods seemed to portend a revolution in education. However, after 1918, the "Montessori fever" had either subsided or in many places, such as America, had disappeared. The American Montessori schools, which were established after Montessori's visit to America in 1915, proved to be either financial failures or victims of the flood of Dewey's progressive education which swept the country at this time.⁸¹ Dewey's disciples declared her method to be too rigid. It was only in the European countries that the Montessori schools became firmly established.⁸²

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⁸¹ "An Intellectual Leap", Newsweek, LXI, June 24, 1963, p. 106.

⁸² "The Joy of Learning", Time, LXXVII, May 12, 1961, p. 63.

Montessori, The Montessori Method, p. 216.

scientific event, there was a flurry of quick appraisals of the American educational system. The anxious American middle-class parent wondered if his child was receiving enough of the right kind of education. "The pressure of American life in the 1960's makes it seem mandatory for everybody to learn more and learn it earlier and faster than ever before."⁸³ But what type of education should be provided for the young child? What are his particular needs in early educational development, and does the Montessori approach fulfill these needs?

Montessori clearly stated her own aim in early education: "All education of little children must be governed by this principle--to help the natural psychic and physical development of the child."⁸⁴ Her education of the senses around which her system revolved was designed with the purpose of adding the development of the child's physical and mental capacities. It is true that her method did enable children to read and to write at the age of five, but was this feat achieved at the expense of other important aspects of the child's personality? Modern educators tend to think so.

First of all, it must be remembered that Montessori's work was done in a period when very little had been revealed about the personality of the child. Montessori herself established several basic principles for scientific pedagogy

⁸³ Evelyn Beyer, "Montessori in the Space Age?" NEA Journal, LII, December, 1963, p. 35.

⁸⁴ Montessori, The Montessori Method, p. 216.

in that she stressed the importance of making the child the point of reference for any educational methods, and also of keeping records and data on the individual children's progress.⁸⁵ However, there has been 50 years of work in the field of child psychology since she developed her method. The new theories of modern education appear to contradict some of her basic ideas.

Montessori stressed the intellectual development of the child with social training relegated to a minor role until later in the child's development. This emphasis was the result of her belief that the early years of the child's life are the best years for developing the child's senses.⁸⁶ Modern child psychologists now say, however, that these first years of life are the most important years for emotional development.

What a child experiences during these years will be decisive for his future development as a personality. One cannot help asking if the strong emphasis of the intellectual training of the Montessori system is done at the cost of emotional well-being. Today we are becoming more and more conscious of the necessity for healthy emotional development which allows children to express their feelings in different ways, not only in words but also in free creative activities.⁸⁷

These "free creative activities" serve as a means for the child to meet such emotional problems as fear, anger, or rejection,

⁸⁵ Alice Burnett, "Montessori Education Today and Yesterday", Elementary Scholastic Journal, LXIII, November, 1962, p. 75.

⁸⁶ Montessori, The Montessori Method, p. 216.

⁸⁷ Britta Schill, "The Montessori System", Childhood Education, XXXIX, December, 1962, p. 172.

and thus, to relate to his world. According to modern thinking, having the child use materials which will help him to develop a healthy mental hygiene is more important than "having him trace a geometrical shape, shine his shoes, or wash his hands in ritual fashion".⁸⁸

There is, indeed, a lack of stimulation of creativity and imagination in Montessori's system, if not a restriction of it. To cite a few examples, there is Montessori's provision for music in her school. According to her, "This must be carefully guided by method". Therefore, she devised exercises to help the child distinguish musical tones of the scale and to differentiate between musical sounds and "disordered and ugly noises" in his environment.⁸⁹ In art, Montessori insisted that the imagination of the child be based upon reality (as related to the use of the senses) so that the child who painted the tree trunk red was not ready to advance in abstract education, in her opinion.⁹⁰ The Montessori child was not encouraged to use clay and paint, or to draw, except for filling in the outlines of the geometric figures in preparation to write. Dramatization or role-playing by the pupils was not encouraged since they were provided with opportunities to accomplish real things--setting the table, etc. It is true that the children receive pleasure from this. "But it is also true that at certain ages young children love make-believe play, just as they all go through a stage of

⁸⁸ Beyer, p. 36.

⁸⁹ Montessori, The Montessori Method, p. 206.

⁹⁰ Mayer, p. 38.

magic thinking".⁹¹ Montessori had a low view of games and toys, and therefore, most of her games were educational ones. Rarely did the pupils sing or play singing games or look at pictures or have stories read to them.⁹²

Montessori's emphasis on order in the environment and the order established by the self-corrective material itself produced a system which was too rigid. There was no material to which the child could bring his own sense of order, such as clay, painting, blocks, etc.⁹³ As previously mentioned, the didactic apparatus could be used only for the purpose for which it was intended. Thus, if a child started to make a train with the wooden pieces of the cylindrical insets, the material would be removed from his possession. Montessori stressed the importance of the child having the freedom to learn and to learn through his own efforts. True, there was some liberty in that the child could choose his own materials, but he could choose from only those materials to which he had been introduced by the directress. Once he settled on a choice, he had to carry out the full procedure in the proper manner.⁹⁴ This can not be considered true liberty of the child, and it is especially restrictive of his imagination.⁹⁵

⁹¹ Schill, p. 173.

⁹² Cole, p. 572.

⁹³ Miriam L. Goldberg, "A Doctor's Prescription", Saturday Review, XXXV, October 20, 1962, p. 90.

⁹⁴ Burnett, p. 74.

⁹⁵ *Ibid.*, p. 232.

⁹⁶ Schill, p. 172.

Another controversial part of Montessori's system is her lack of social training. Montessori emphasized the individual child who was to build his personality through free, independent work. Social interaction occurred through the older children helping the younger children with their didactic materials. Montessori believed that this type of social communication was the most important.⁹⁵ Montessori said that her children had a sense of unity, a feeling of being part of a group, which she called "cohesion in the social unit." This feeling appeared to rise from a group "spirit" rather than from any actual work as a group.⁹⁶ Starting first grade involves being able to associate with one's own age group, being able to work together knowing something about the environment and how to behave in it. It seems that cooperation and teamwork are the great slogans of our time. Montessori does give training in cooperating in the intellectual area though some educators say it comes at too early a stage. "But what about personal relation between human beings? Does this system provide enough experience in this area?" It is not so much a question of intellectual development as that of maintaining emotional balance and encouraging identification within a group.⁹⁷

Dr. Bernard Spodek, Assistant Professor of Elementary Education of the University of Wisconsin, speaks on behalf

⁹⁵ Montessori, The Absorbent Mind, p. 225.

⁹⁶ Ibid., p. 232.

⁹⁷ Schill, p. 172.

of Montessori. He states that the Montessori schools "unlock" that developmental potential of young children which is "being held back" by the current practices in kindergartens and nursery schools. Conventional programs are too group oriented and too concerned with providing children with emotional outlets. "Children in these schools are not only bored, but they are being refused educational experiences that would support normal development."⁹⁸

On the other hand, Luella Cole says that Montessori's intellectual environment based on sensory education is not essential for the development of the young child.

...enough training of the senses for any ordinary purpose is automatically given by the processes of growing up and achieving an ordinary education and that additional training, if needed for a particular job, can be acquired at any period of life up to senescence. The matter of sensory training has to be considered in the light of a child's total needs and such time assigned to it as will not interfere with the development of other equally important abilities.⁹⁹

Criticism of three other areas of Montessori's method is significant enough to mention. Concerning Montessori's theory that the environment determines whether or not the child's potential as a future man is realized, Dr. Spodek says that his concept of development assumes that the limits of development are fixed at birth. This idea

⁹⁸ Bernard Spodek, "Montessori Education Visited", Elementary English, XXXII, January, 1965, p. 75.

⁹⁹ Cole, p. 573.

contradicts the more widely accepted idea that the child is created as he goes through interaction between himself and his environment.¹⁰⁰

William Heard Kilpatrick, one of the foremost disciples of Dewey, is not a recent critic of Montessori, but many of his criticisms are still pertinent today. In his evaluation of her system in 1914, he pointed out that Montessori's concept of learning was based on faculty psychology, a concept discarded years previously in both Germany and America. Faculty psychology involves the idea that the mind or individual has several faculties or abilities which are separate and therefore must be dealt with separately. Transfer of learning or training to other abilities or from the theoretical to the practical is automatic according to this doctrine. Montessori's training of the individual senses seems to infer that she did believe in automatic transfer. Kilpatrick said that the specialized training, which the didactic apparatus evoked, was training only in a particular discrimination, and not a general power.¹⁰¹ This criticism has not been frequent recently because of the success Montessori schools have had with teaching school subjects.

The third criticism involves Montessori's method of training directresses for her school. Brita Schill, staff

¹⁰⁰ Spodek, p. 76.

¹⁰¹ William Heard Kilpatrick, The Montessori System Examined, (New York, 1914), p. 50.

member of the Social Pedagogical Seminary, Stockholm, Sweden, says that the Montessori "teachers" do not receive a long enough period of training. The Montessori training program encompasses a six-month period in which they study the psychology of the child, function of the "prepared environment", and the proper use of the didactic material. Schill says that as much knowledge as we now have of child psychology even three years of preparation seems far too short.¹⁰²

The main contribution of the current Montessori revival in America is already taken for granted: the preschool child is ready to learn. The revival was an important reminder for both parents and educators.¹⁰³ Dr. Kenneth D. Wann, specialist in early childhood education at Teachers College, Columbia University, believes, "we can learn much from the Montessori approach."¹⁰⁴ Since the Whitby School was opened in 1958 by Nancy Rambusch, the founder of the American Montessori Society, there has been widespread fanfare of the success of the Montessori method with American children. The four instruction areas of practical life, sensory development, language, and mathematics are still basic in the American Montessori schools. "With almost no visible goading, Whitby's kids learn numbers at 3, write at

¹⁰² Schill, p. 173.

¹⁰³ Goldberg, p. 62.

¹⁰⁴ "What's So Special about Montessori Schools?"

Good Housekeeping, CLVIII, May, 1964, p. 165.

4, read at 5, parse sentences at 7."¹⁰⁵ Since 1958, about 125 Montessori schools, almost all for 3-6 year olds, have been founded. In the Washington, D.C., area alone, 32 classes have been started in two years.¹⁰⁶ Many of these schools have been opened by parents and are non-denominational. (Since Montessori was Catholic, many of the Montessori schools are affiliated with the Catholic church.)

Educational gain, if any, of Montessori pupils over children taught conventionally have not been documented. Montessorians have not completed research on the method's learning value. Neither the NEA nor the U.S. Office of Education has taken a formal stand on Montessori.¹⁰⁷ Europeans claim the average Montessori student is a year or two ahead of his peers. Some Montessori teachers in this country suggest talented pupils be placed one year ahead of their age level with their transfer to a traditional school. Experience has shown that most Montessori children have little trouble adapting wherever they are placed.¹⁰⁸

Many educators feel that the Montessori method may ultimately prove most useful not to the offspring of the affluent society, but to underprivileged and physically handicapped children.¹⁰⁹ "Though her approach has values for

¹⁰⁵ "The Joy of Learning", Time, p. 63.

¹⁰⁶ Charles Mangel, "Montessori Education Begins at 3", Look, January 26, 1965, p. 61.

¹⁰⁷ Good Housekeeping, p. 164.

¹⁰⁸ Mangel, p. 67.

¹⁰⁹ Newsweek, p. 106.

the education of children from all backgrounds, many of the specific materials were designed to help children whose experience was desparately impoverished."110 Montessori herself said, "If we want an easy experiment with sure success, we should go to work among poor children, offering them an environment they do not possess."111 Martin Mayer said:

The scandal of modern education for slum children has lately become a matter of national discussion and worry. Since the Second World War, the gap has steadily widened between the educational accomplishments of middle-class children and of working-class children (particularly of Negro working-class children). Insensibly, our methods of instruction and our curriculum have come to assume greater and greater contributions by the home to the education of the child, and where these contributions are lacking the schools are simply ineffective.

Mayer continues to say that at present we do not know how to give a significant proportion of the American slum children a reasonable education, but pre-kindergarten programs would be a help and in this context, there is no escaping the work of Maria Montessori.112 At the present time, experimenters are running a Montessori school in Chicago's Cabrini slum-clearance project. The children who live in the project are mostly fatherless Negroes and Puerto Ricans whose mothers work or are on relief. The Chicago Montessorians are tackling the job of preparing pre-school children from

110 Mayer, p. 38.

111 Montessori, Education for a New World, (Adyar, India, 1959), p. 66.

112 Mayer, p. 33.

113 "Montessori in the Slums," Time, LXXIV, July 10, 1964,

Ibid., p. 54.

racial ghettos for the middle-class public schools.¹¹³

If the Montessori method does find in the education of slum children its proper sphere in the Space Age, then Montessori's work will have come full circle from its initial development in Montessori's first Casa dei Bambini in the slums of Rome.¹¹⁴

Montessori's ideas brought status to the young child by revealing his intellectual potential. The possibility of educating the pre-school child is accepted by modern educators. As Jerome Bruner's The process of Education, he proposes the hypothesis that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development."¹¹⁵ Bruner proposes a curriculum in which the same material is presented at successively more difficult levels for each stage of the child's development ("spiral curriculum"). Montessori's stress on studying the individual child and providing for individual needs of children is now considered important in educational circles, also.

Montessori's idea of the "sensitive periods" of the child are not fully accepted from the biological view point. However, they correspond in some respects to what modern

¹¹⁵ New York, 1963, p. 33.

¹¹³ "Montessori in the Slums," Time, LXXXIV, July 10, 1964, p. 53.

¹¹⁴ Ibid., p. 54.

Conclusion

It is too soon to tell whether or not our century will become known as "The Century of the Child". Child psychology has certainly become an important science today. Judging by the interest which the work of Dr. Arnold Gesell and others has aroused and by the sale of books concerning psychology and pedagogy of the child, the adult is concerned and interested in aiding the development of the child. Increased knowledge of the reason for children's behavior will certainly help in bridging the gap between the child's world and the adult's.

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¹¹⁵ New York, 1963, p. 33.

educators call the developmental "needs" of the child. These "needs" are not as limited to specific age periods as Montessori's "sensitive periods", and they include, not only the child's mental and physical needs, but his social and emotional ones as well.

Recognition of the importance of the prepared environment of the young child is now an integral part of educational methods, also. Modern educational theories do not include the "deterministic" quality of the environment on which Montessori seemed to base her system. The need for freedom of activity in the environment is important, however. Dewey's motto of "Learn by doing" seems to apply here for the child must be kept active in order to learn. Willard Olson advocates the child having the freedom of self-selection in his environment. He says that the wisdom of the child's body and mind will lead him to seek appropriate experiences. The task of the teacher is to provide a stimulating environment in which the child can "pace" himself according to his needs and readiness.¹¹⁶ As one can see, many of Olson's ideas correspond to the ideas Montessori proposed fifty years ago.

If Montessori's areas of learning--practical life, sensory development, and the school subjects of language and mathematics--are to be advanced in the modern age, they will have to be adapted to the modern American culture. The emphasis placed on learning practical life skills such as

¹¹⁶ Child Development, Boston, 1959, p. 12.

polishing shoes, buttoning clothes, etc., will depend a great deal on the environment of the home from which the child comes. These exercises were certainly important for Montessori's slum children due to the lack of this training at home, but they may not need to be emphasized as much with children from American middle-class homes. Of course, practice with this type of didactic material would not be detrimental to any type of child.

Modern nursery educators agree with Montessori's tenets that the years between three and six are important ones for growth and development of the child's senses. They know that a child learns with both his muscles and his head as he manipulates objects in his environment and that there is a positive collaboration between the two.¹¹⁷ But Montessori's didactic material should not be the prime material around which the school revolves. Children's natural curiosity combined with the fact that many of the educational "toys" today are self-correcting produce a similar effect as far as natural learning is concerned without the harmful restrictions of imagination imposed by Montessori materials.

The modern nursery, however, by being so conscious of the emotional and social development of the young child, may be neglecting the intellectual potential which lies in the early years of life. There has certainly been little evidence against the success of teaching children to read and write in pre-school instruction. Montessori's methods of

¹¹⁷ "Montessori in the Space Age?" NEA, p. 35.

teaching writing and reading have not been as difficult to adapt to American children as previously considered, judging by the success of the American Montessori schools. Her method for preparation for reading is very similar to the techniques used today in the primary grades of public schools. Montessori's rods used in teaching mathematics have been superseded by the "Cuisenaire" rods, named after the Belgian teacher who invented them. These rods are much more effective in teaching the four fundamental rules of arithmetic (addition, subtraction, multiplication, division).¹¹⁸ The concepts of teaching mathematics to children have been greatly advanced in recent years. Montessori's concept of "zero" as "nothing" would no longer be acceptable today, but some of her mathematical games would favorably supplement the young child's prepared environment.

Two major contributions of Montessori were her uses of self-correcting materials and the non-graded classroom situation. These ideas were not new with Montessori but she revitalized the interest in them. Materials which are self-corrective help the child to develop independence and confidence in his own ability to learn. The need for decision-making which it requires is certainly basic for preparation for living in a democratic society. The materials also offer the opportunity for simple mastery experiences raised to progressively higher levels of difficulty. The teaching

¹¹⁸ Mayer, p. 38.

machines which are under experimentation today have as a basic premise the value of self-correcting materials.

Vertical structure of age grouping in the classroom is now being experimentally used in many areas of the U.S. The intellectual social interaction which occurs in a non-graded classroom was of prime importance for Montessori. The system by which the child is allowed to progress at his own pace based on intellectual, social, and emotional factors rather than by specific age has met with success not only in Montessori schools but in many public schools.

There is one definite observation which can be made about the Montessori method. If it is to have a profound effect on the American educational system, it must be adapted to recent theories of the child's developmental needs and to the American culture itself. One proposal is to combine the best aspects of Montessori's intellectual approach to the young child's education, with the current practices of modern nurseries and kindergartens in the development of the child's emotional and social needs. Thus, the Montessori didactic materials could be used in a prepared environment which would stimulate the creativity and imagination of the child. Independent work with materials could be alternated with cooperative group work and play. The only approach with which the Montessori method could be used in its more "pure" form is possibly with the current work with American children in the slum areas. In this type of situation the Montessori method had its origin and may also have its greatest future success.

The revival of the Montessori method in America is still too recent to draw positive conclusions, but as every critic of Montessori acknowledges, her approach to education has values which are too important to be disregarded. Only the future holds the answer as to whether Montessori's ideas on education will permanently affect the American educational system.

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