

**MONTESSORI**  
**IN**  
**CONTEMPORARY**  
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**CULTURE**

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PART TWO  
**VIEWS**  
**FROM**  
**OUTSIDE**  
**THE**  
**MONTESSORI**  
**FIELD**



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## INTRODUCTION

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In part 2, five professionals from diverse disciplines examine the influence of Maria Montessori's thinking on their own fields.

David Elkind's chapter relates the idea of cultural frames to the Montessori prepared environment. Elkind, who has adapted Erving Goffman's concept of frames to his work with teenagers, now applies the notion of cultural frames to the younger child. He suggests that the Montessori prepared learning environment offers four important types of frames to support the child's emotional and social development: classroom frames, activity frames, teacher/child frames, and child/child frames. These frames (which Goffman described as repetitive social situations with their own rules, expectancies, understandings, and emotional rhythms) assist the child in moving into the broader and more complex social milieu of a group environment. Elkind offers a contemporary explanation for Montessori's often misunderstood concept of normalization.

Linguist Carol Chomsky focuses on Montessori's remarkable insight that writing naturally precedes reading in young children's development. She compares Montessori's early observations to current interest in young children's so-called invented spellings, exploring the similarities and differences. Chomsky begins with her own observations in 1950, continues through the work of Charles Read in the 1960s, and moves on to consider the growing recognition today of the developmental importance of this early writing for the child.

Sylvia Richardson, M.D., who has spent much of her professional life as a pediatrician studying, diagnosing, and developing programs for children

with learning disabilities, credits Montessori in her chapter with developing an educational methodology that includes the necessary components to assist children with learning disabilities. She advocates the use of this methodology for young at-risk preschoolers—particularly those with attentional disorders—in order to minimize the problems that they will encounter later. Richardson enumerates how the components of the prepared environment also support the young child's development in perception and in language, both spoken and written, thus preventing the development of many problems.

Psychologist William Crain, from City College of New York, points out an often overlooked characteristic of young children's thinking, richly described by Montessori—the inherently emotional nature of the process. Crain suggests that the trend in recent years to look to computer models for an understanding of human cognition misses the vital role that emotion plays.

Montessori believed that the child's spontaneous cognitive work so directly affects the development of the whole personality that adult interference creates emotional problems. Crain points out that Montessori's descriptions of these problems have anticipated central themes in the psychoanalytic self-psychology of D. W. Winnicott. Both theorists, according to Crain, have been concerned with the ways in which people lose faith in themselves and become slaves to social approval. Montessori's methods offer children opportunities to build a firm sense of themselves based on independent, intrinsically meaningful work rather than on a shallow dependence on social approval.

The final chapter in part 2 is by Lilian Katz, who plays various roles in American early childhood education and represents an important and critical outside voice in this discussion. Katz argues that researchers in early childhood education have a weak data base because of the transient characteristics of their immature subjects and the moral dilemmas posed by carrying out research on children. The field is therefore open to doctrinaire arguments based on competing ideologies. A possible solution is to provide opportunities to examine and debate competing ideas. She challenges Montessorians to address issues relating to Montessori's educational approach as well as to correct misunderstandings held by the broader educational community about Montessori's concepts and practices.

Answers to many of Katz's questions are included in earlier chapters of the book. A follow-up section addresses specific responses to six major questions:

- What are the essentials of a Montessori classroom?
- What is meant by a prepared environment in Montessori's educational framework?
- What is Montessori's concept of multisensory learning and how is it applied?
- Is autonomy an important goal for young children?
- Do Montessori practices fit the developmentally appropriate guidelines delineated by the National Association for the Education of Young Children or are there differences?
- What is the current state of American Montessori practices?

Several representatives of contemporary Montessori thought and practices furnish responses: Beth Bronsil, Xavier University; Marlene Barron, New York University (representing programs affiliated with the American Montessori Society); and David Kahn, North American Montessori Teachers' Association (NAMTA) (an invited participant at the symposium). Their answers may not encompass the views of all American Montessori educators, but they do represent the views of persons actively involved in Montessori classrooms. Katz's questions and the answers must continue to be formulated as an ongoing dialogue among early childhood educators. The need for such a dialogue becomes clear as we continue to seek solutions to the many social and educational challenges that face us as we approach the beginning of a new century.

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## MONTESSORI: SOCIAL-EMOTIONAL PERSPECTIVES

The Montessori method and materials are commonly thought to encourage the development of the child's intellect and the skills of reading, math, and writing. Much less common is the appreciation that the Montessori method and materials also foster emotional and social development and skills. In this chapter I will describe how the Montessori method and materials facilitate social and emotional growth. I believe that this can best be done by discussing the role of frames in a child's development.

### FRAMES

The late Erving Goffman, perhaps our most gifted sociologist and anthropologist, described an important structure of social life in his book *Frame Analysis* (1974). Frames are repetitive social situations with their own rules, expectancies, and understandings. Frames also have an emotional rhythm that can be completed, broken, or spoiled. Frames are part of what Goffman liked to call the "dust" of human existence—those aspects of our everyday lives that we tend to neglect or ignore as unimportant and insignificant.

A few examples of frames may help to clarify this concept. A common adult frame is the waiting room situation. Waiting rooms, whether at an airport, doctor's office, bank, or wherever, have some implicit rules, expectancies, and understandings that most people in these situations comprehend and follow often unconsciously. Waiting room rules include taking one's turn and not going out of line, not intruding into other

people's space or conversations, not bothering other people with strange behavior such as singing, talking loudly to neighbors, and so on.

Waiting room frames also have an emotional rhythm that can be interrupted or spoiled. If there is a long line of people waiting to get on an airplane and someone walks to the head of the line and cuts in nonchalantly, there is a lot of resentment among the other people waiting in line. The person who cut in effectively spoiled the frame and produced an emotional reaction that needs to be dissipated. The effect can be dissipated by someone saying something to the person who cut in and getting an apology in return. If some remedial work is not performed, those who experienced the spoiled frame may discharge the emotional reaction in other situations and in response to others who have broken frame rules. Unexpectedly harsh reactions to the breaking of a particular frame rule can occur when the person is responding to an accumulation of past spoiled frame experiences.

Spoiled frames are a commonplace in contemporary society. When, for example, we open the door for someone and they do not say "Thank you," we experience a spoiled frame. Good manners are essentially a set of frame rules regarding how to behave in repetitive social situations. Because good manners are less common today, those who do practice them often experience spoiled frames. Likewise, when people behave badly in public places we again have examples of broken frame rules. In a supermarket where we are supposed to pick up bakery items with a set of tongs, the person who uses fingers is breaking the frame rules. So too is the person who eats from the bunch of grapes or bag of candy in the shopping cart while doing the rest of their shopping. The mundaneness and all pervasiveness of the frame rules are reasons we take them for granted. Yet, as Goffman points out, they take up a large proportion of our social consciousness and energies.

## FRAME ACQUISITION

Goffman was concerned mainly with the behavior of adults operating in frames. He did not deal with how children attain frames nor with the developmental limitations of such acquisitions. Yet the idea of frames provides an all important insight to the socialization of children. Indeed, I would argue that learning frames is the way in which children become socialized. Nonetheless, as we would expect from the work of Piaget, the child's ability to acquire and utilize frames varies with the level of intellectual development.

Here again, a few examples may help. Consider the thank-you frame. To understand this frame the child must know the general rule: "Every time someone gives me something, I must say, 'Thank you.'" They must also be able to deduce from that general rule the conclusion: "This person has given me something, therefore I must say, 'Thank you.'" Clearly learning the frame rule having to do with thank-you requires syllogistic reasoning. To employ the rule, the child must go from the general rule to the particular example. Such syllogistic reasoning, and correspondingly such applications of frame rules, however, depend upon the attainment of what Piaget (1950) has called "concrete operations," which do not usually appear until the age of six or seven.

Some frame rules are sufficiently complex that they cannot be fully understood and utilized until the young person reaches adolescence and has acquired the higher level of mental operations that Piaget describes as "formal operations." Consider the set of social rules involved, say, in asking someone for a date. The rules are complicated, because in addition to asking the person out, it is also necessary to protect oneself in case of rejection. This set of rules, then, involves the ideas of possibility and contingency, which can only be constructed with the aid of formal operations.

When asking for a date and in order to avoid rejection, the person first inquires whether the other person is busy on the evening in question. In this way, the person asking does not have to make a premature commitment. Such an approach also allows the person who is being asked out to avoid the encounter without seeming to reject the other person. This higher order of frame interaction is characteristic of adolescents and adults.

The acquisition of frames, then, has a developmental dimension. Some frames cannot be learned until the young person has attained concrete operations, others cannot be learned until the young person has reached adolescence and attained formal operations. The emotional dynamics associated with these frames also become more complex and will not be fully experienced until the young person has reached the requisite level of mental development.

## FRAMES IN MONTESSORI EDUCATION

From the perspective of frames, it is reasonable to propose that Montessori education involves children learning frames at several different levels. At the broadest level there are what might be called *classroom frames*, which

operate for all children in the classroom at all times. In addition there are *activity frames* associated with one or another material or activity. There are also *teacher-child frames*, in which the teacher and child interact. And finally there are *child-child frames* that govern the interaction of children with one another. These frames, like all the others we have talked about, have their own system of rules, understandings, and emotional rhythms. We need now to look at these Montessori frames in a little more detail to explore how they operate to further the child's social and emotional development.

## CLASSROOM FRAMES

In a Montessori school, the child learns early on the classroom frame rules of Montessori education. One of these rules is *responsibility*. The child is expected to take responsibility for the materials he or she takes out and uses. Teachers instruct the children in this rule both verbally and by example. Very quickly, children come to realize that if they remove materials, they must put them back in their place and in their original configuration.

Another classroom frame rule that children learn early on is *independence*. Again through teacher and pupil example, children learn that they are to work by themselves with the materials and that they are not to disturb other children. Another classroom rule is *cooperation*. If a child wishes to use materials that another child is already using, the first child must wait until the other child has finished working. Children learn other cooperative frame rules at snack time, when they help set the table or serve snacks to the other children.

It is reasonable to ask at this point how it is possible for young children to learn rules that seem to require concrete operations and syllogistic deduction, as in the description earlier of learning to say, "thank you." These classroom rules are essentially action or motoric, rather than verbal. Such rules can be learned by observation and imitation and with little in the way of verbal instruction. The syllogistic rules involved in learning to say "thank you," in contrast, are verbal; that is why their effective utilization depends on the attainment of concrete operations.

What happens when classroom frames are broken or spoiled? In general, a child breaking a classroom frame rule upsets the other children, who will attempt to correct the problem themselves. If a child fails to put away materials, another child will help or remind the first child of what needs

to be done. Montessori recognized how much young children come to depend upon frame rules to provide the order and consistency they need to feel secure. Children experience violation of frame rules as a threat to the order in their world and move immediately to put the frame rules back into effect.

## ACTIVITY FRAMES

One of the major strengths of Montessori education is the explicit frame rules for using materials. Montessori recognized that a set of frame rules allows children to get the most from working with manipulative materials. This is not intuitively obvious. It might seem that children playing with blocks, for example, in a completely free and spontaneous manner would nonetheless learn a great deal about size, balance, before, behind, and so on. Although that may in fact occur, putting block play within a system of frame rules insures that the child will derive the most knowledge from this activity.

Piaget also recognized the importance of frame rules when introducing children to manipulative materials. He once visited in the 1930s the Malting House School in London where renowned child psychologist Susan Isaacs worked. The school was run on "progressive" principles and children were given a great deal of freedom in choosing the materials they wanted to work with and the way in which they employed them. Piaget was impressed with the school but also remarked that he thought the children might well benefit from a little more adult direction.

Montessori recognized the necessity of structure when children are first starting out with an activity and the importance of free experimentation with the materials once they had mastered the initial procedures. Consider a child who is working with the pink tower (a set of size-graded, square pink blocks that can be built into a tower with the largest block on the bottom and the smallest one on top with a steady progression of smaller size and higher position). Once he or she has learned to order the blocks according to size in the vertical direction, it is quite natural for the child to then arrange them horizontally or to construct other figures with them.

Montessori realized that frames were not meant to imprison us into fixed routines but rather to free us by making the fixed routines automatic and unconscious. Structures or frames are not the enemy of freedom—as some extreme advocates of progressive education argued—but rather an essential condition of healthy freedom. Activity frames, then, are not

meant to bind children into fixed routines from which they must not deviate but rather to give them the foundation skills necessary for innovative and creative work.

Montessori gave many examples of children who, after having mastered the initial structure or frame, moved on to creative utilization of these operations. She describes one boy who did mathematical calculations in his head that a visiting teacher had to do with pencil and paper. When the child made a mental correction, Montessori observed, "This subsequent mental correction in quite a complicated calculation caused greater astonishment than the fact that he had been able to carry out the operation itself. The mind of the child possessed a peculiar faculty for retaining these successive phases" (1975, p. 57).

Montessori gave many other examples of children who went beyond the initial frames. "There was a child who had learned the extraction of the square root according to the procedure indicated by our apparatus. He was intensely interested in extracting square roots by himself but he did so in a different way invented by himself, which however he could not explain" (1975, p. 57).

Montessori described her method of education not as a confinement, but as a prelude to freedom: "Our conception of education may be figuratively described by saying that the educator stands behind the child and allows him to go forward as far as he can, whereas the other method is to stand in front of the child and prevent him from going further than limits imposed upon him by the teacher" (1961, p. 65). Montessori education, then, is not aimed at binding children into rigid routines. Quite the contrary—the routines are a path to spontaneous activity and creativity.

This important point is frequently misunderstood by critics of Montessori education. Yet in any discipline—be it art, science, or the professions—freedom and innovation always follow from a solid grounding in structure. Leonardo, for example, could hardly have created his *David* without a solid knowledge of human anatomy. Likewise, Shakespeare could hardly have achieved what he did without a thorough understanding of the structure of language and of the dramatic arts.

To be sure, genius is more than structure, but even geniuses must know the structures of their disciplines to realize their genius fully. And even those creative workers who break the rules of the discipline, such as the French Impressionists did, have to know the rules first. The same is true in science. Creative discoveries are always built upon the work of others. As Darwin said, "If I have seen further it is because I have had such broad shoulders to stand upon." Far from being the enemy of freedom, frames are

its closest ally. And freedom is a social and emotional as well as a cognitive experience and orientation.

Activity frames, like all frames, also have an emotional rhythm that further contributes to their social-emotional value. Montessori gives many different examples of the emotional rhythm inherent in frames and the emotional satisfaction that children experience when they are allowed to bring these frames to completion. Again, some of the frames may be constructed by the children themselves. Montessori gave this example:

Another time I saw a boy who had resolved to work out a gigantic multiplication of numbers consisting of 30 figures by another 25 figures. The partial products accumulated to such an extent that the boy was surprised. He had to have recourse to the help of two friends, who had to find sheets of paper and stick them together to contain this monstrous operation and its enormous development. After two consecutive days of work the multiplication was not finished. It was completed only the next day, yet without the boys showing any sign of being tired of it. They too, seemed proud and satisfied with their great achievement. (1975, p. 56)

If these children had been interrupted and forced to engage in some other activity before the multiplication project was complete, the frame would have been spoiled. Instead of emotional satisfaction and intellectual closure, the children would have experienced emotional and intellectual frustration. Although Montessori did not use the term *frame* she clearly understood the concept and the fact that frames are emotional and social as well as intellectual. In the above example, a single child expanded his frame to include his friends who helped him to complete it.

In a real sense, activity frames are at the heart of Montessori education. And as we have seen, these frames are social and emotional as well as intellectual. Just as intellectual structure is a necessary prerequisite to intellectual freedom, so too are social-emotional structures a prerequisite to social-emotional freedoms. True social freedom only appears with the acceptance of social responsibility, and true emotional freedom will only be present when there is a sense of empathy for others. Social responsibility and empathy are by-products of the acquisition of structures inherent in activity frames.

## TEACHER-CHILD FRAMES

I recently met with a group of educators who were deeply concerned about the teaching of values and relativism. They were concerned that they

might indoctrinate their students if they took a strong position on certain issues that they believed in. Moreover, they believed that an assertion of values would be an abuse of their power in the sense that the students might feel coerced into accepting those values. This recurrent issue in education needs to be raised in any discussion of teacher-child frames.

Montessori's position on this issue is complex. On the one hand, she herself held certain values that she did not question. She believed in respecting children as individuals with their own ways of thinking and knowing. She believed that children should be given responsibilities in keeping with their abilities. She believed that adults should encourage and support children's spontaneous efforts toward growth rather than restrict and bind them. But she also believed strongly that adults should not place their desire to teach ahead of the child's desire to learn.

Although these values are embodied in the techniques of Montessori instruction, Montessori did not see herself or her teachers as imposing these values on the child. Instead, she saw these values as inherent in the processes of growth and development. She contended that she was espousing the values that were fundamental to the nature of the child. Like the founding fathers in their preamble to the Bill of Rights, she took these values to be "self-evident." Accordingly, Montessori felt no hesitation in communicating these values to children:

We are not trying to overthrow the great sentiment and veneration which we owe to our parents. But we wish to secure for the child the sense of gratitude and affection similar to that which we bear towards our parents so that we may not consider the child as the product of the adult, but rather the producer of the adult. It is only a cycle in which both adults and children take their places and it is necessary to recognize the parts both play and the relative importance of each. (1961, p. 17)

In many ways, Montessori's criticism of the adult-child and teacher-child frames of her day have been given a modern expression in the voice of psychiatrist Alice Miller (1981). Miller speaks of "poisonous" pedagogy and of narcissistic parents who fail to respect the child as an individual and who as a result destroy the child's budding sense of self-esteem and authenticity. Like Montessori, Miller has no hesitation about espousing her values because she sees them as inherent in the nature of the child rather than as her own personal beliefs.

There is a danger here, of course. Who is to say that Montessori, or Miller, or Piaget, for that matter, is reading nature correctly? Perhaps these

individuals, like the rest of us, are merely propounding personal values that we grandiosely and self-importantly pass off as nature's laws. Who is the final arbiter as to what nature's laws really are?

The only answer, or so it seems to me, is the scientific one—the rules of evidence. If Montessori has read nature correctly, then the practices she identifies as deriving from nature should work better than those that do not reflect the child's nature. And, of course, the principles have worked. Otherwise Montessori schools and Montessori education would not have survived and flourished as they have. The proof, in the end, is in the pudding.

There is, then, some empirical justification for employing those child-teacher frames that embody respect for the child, recognition of the child's powers and abilities, and encouragement of the child's independence and spontaneous growth. These values are present in all of the teacher-child frames in the Montessori classroom.

Nonetheless we still have to ask whether Montessori teachers abuse their power position by espousing these values. I don't think so. I believe children appreciate adults who demonstrate a clear set of values. The child is, after all, not an automaton. We show respect for the child when we display our own values because we recognize that the child has the choice to accept or reject those values. To be sure, if we punish a child for rejecting our values and reward him or her for accepting them, then indeed we have abused our powers. But if we put our values into practice and recognize the child's right to accept or reject them, we are teachers in the best and fullest sense of that term.

I have dwelt on values because, like structure and freedom, they are fundamental to the educational enterprise. And not surprisingly, all of the renowned writers on early childhood—from Pestalozzi, Froebel, Montessori, Dewey, to Piaget—have taken the same position, both with respect to structure and freedom and with respect to the teacher's role vis-a-vis the child. With regard to the latter, each of those writers has recognized that we teach children values by who and what we are as people, not through curricular materials. If we respect children, if we appreciate their special talents and abilities, and if we value their energy and forthrightness, these values will be evident in everything we do.

From a Montessori perspective, therefore, teacher-child frames should reflect the teacher's knowledge of child development. How we speak to children, what demands we make of them, and what activities we model must all reflect a sensitive understanding of their abilities and energies.

When we do this, as Montessori recognized, children feel secure and positively challenged—secure because they know that they are in the presence of an adult who respects and understands their worldviews and challenged because the tasks the teachers set are appropriate to their developmental level.

### CHILD-CHILD FRAMES

Once, while visiting a Montessori school, I inadvertently stepped upon a child's mat, her personal space. I apologized and she quite comfortably asked me whether I would like to share her mat with her. In this instance, as in the one described above where other boys helped the child who was working on the multiplication project, the essential child-child frame in Montessori classrooms is cooperation. To be sure, there is competition as well, but children compete with themselves, cooperate with others.

These child-child frames are taught primarily by modeling. The teachers model cooperation with the children and the children extend this to one another. Of course there are failures at times; children are children after all. But children immediately work to redress the spoiled child-child frames. A child who does not cooperate will be asked to do so by another youngster or told that he or she should have done so. In Montessori classrooms children themselves feel comfortable about repairing frame lapses and spoiled frames.

### CONCLUSIONS

In this paper I have tried to describe some of the social-emotional components of Montessori education. By emphasizing the central role of frames in Montessori education, I hope to have illustrated how this education speaks to the child's social emotional development as well as to the intellect. Frames are at once social and emotional as well as intellectual. Indeed the idea that any system of education could be solely academic or intellectual is in a way absurd. We are social, emotional as well as intellectual beings, and a system of education that ignores a side of our being loses much of its effectiveness and value.

As I have tried to illustrate, Montessori education not only teaches children academic skills, but also works to enhance the child's self-esteem, personal freedom grounded on social responsibility, emotional freedom grounded on social empathy, self-selected values, and cooperation. In a

real sense, therefore, Montessori education addresses the child's humanity in all of its mystery and complexity.

This is the ideal of course, and in practice we never reach the ideal. What is important is that the ideal is there, and that we strive to attain it.

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## **MONTESSORI AND LEARNING DISABILITIES**

American education is currently under attack from many quarters. The nation now recognizes the need for a more literate society, which will require modifications in the educational system. Almost one-third of our children will join the ranks of the illiterate unless they are provided with instruction that meets their needs. Many of these youngsters will be dyslexic or have learning disabilities. Others will not—but they will need appropriate instruction.

This paper will first discuss the major characteristics of learning disabilities and then describe Dr. Montessori's approach to education. Hopefully, the reader will grasp the significance of the Montessori principles and practices as they may be applied in the education of children with language-learning disabilities.

### **LEARNING DISABILITIES**

All children with learning problems do not necessarily have specific learning disabilities. Diagnostic terminology in this field can be extremely confusing. A number of terms are used freely by educators, the lay public, as well as the medical profession.

In 1988, the National Joint Committee on Learning Disabilities (NJCLD), a national committee representing nine organizations concerned with individuals with learning disabilities, provided what may be the best definition, which has also had wide acceptance among professionals:

Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the lifespan.

Problems in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability.

Although learning disabilities may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance) or with extrinsic influences, (such as cultural differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences. (NJCLD, 1988).

Children with specific learning disabilities are of at least average intelligence. Boys outnumber girls by approximately four to one, which happens to be the approximate ratio of boys to girls in relation to language disorders and stuttering. There is usually a family history of learning disabilities, especially among the dyslexic population. These children demonstrate disorders of varying degree in one or more of four areas: coordination, language, attention, and perception.

## DISORDERS OF GROWTH AND/OR FINE-MOTOR COORDINATION

The child with learning disabilities may be quite clumsy. Although not a cause of learning disabilities, clumsiness is frequently an associated symptom that can be devastating for a child. This is the youngster who bumps into everything, spills the milk, trips over a thread in the carpet. Of course, there are many clumsy adults who have never had any learning problems, and clumsiness may not be a major concern from the adult point of view. Clumsy children who have difficulty hopping, skipping, running, riding a bike, or playing ball, however, probably don't feel very good about themselves. They are rarely chosen to be on anyone's team and they get in trouble at home because they break things. They easily develop a low self-image—in itself an impediment to learning.

Children with poor fine-motor coordination are unable to coordinate the small muscle groups, particularly in their hands. They may have difficulty dressing and undressing, learning to button, tie, and zip. In school, they will have difficulty using a crayon, scissors, and a pencil. Children with fine-motor incoordination become dependent on others to

cut up their food, to help them dress, and so on. This poor coordination is indeed a handicap, since one of the major requisites for school success is independence so that children may assume the responsibility for their own learning.

Gross- or fine-motor incoordination is not the crux or the cause of any specific learning disability, but may nonetheless prevent children from meeting the normal demands of school in all aspects—academic, social, and emotional.

## DISORDERS OF LANGUAGE

The language problems of children with specific learning disabilities may be extremely complex. Because they are not visible, unlike problems in coordination or behavior, they are less likely to be discovered or diagnosed. We are not discussing speech problems alone. Speech, like writing, is the motor act of self-expression. Language and thought are related processes, and the term *language* includes both spoken and written language. In order to acquire competence in reading we must build on proficiencies made available in the primary (spoken) language system.

Children with learning disabilities may have problems with any of the several components of language, especially those that affect reading: *phonology*, the sound structure of our language, which includes syllables as well as phonemes; *syntax*, the rules that govern the sequential ordering of words, phrases, and sentences; *semantics*, the meaning system that is attached to words and phrases as a result of experience in many contexts; and adequate *short- and long-term memory capacities*. Many youngsters with learning disabilities have considerable difficulty bridging from speech to print, establishing sound/symbol correspondence in beginning reading—a task that draws on their phonological awareness and memory and also is dependent on the discovery that words are made up of smaller units.

Delay in the acquisition and use of spoken language may be the sole forerunner of a learning disability. Most children with reading and writing problems will have had a history of late or impaired speech and/or language development. These limitations make it difficult for them to learn, in or out of school.

Children with learning disabilities may not have much trouble with articulation, although they may have "cluttered" speech, speech that sort of falls on top of itself. Speech therapy is helpful for such youngsters but other language problems are usually involved as well.

It is important to note that children, upon school entrance, do not possess equal levels of competencies in the critical language areas. Since success in beginning reading, and consequently in beginning school, depends upon the adequate development of the functions of spoken language, early school experiences should be directed toward oral language development as well as reading instruction.

## DISORDERS OF ATTENTION

Disorders of the functions of attention include short attention span, distractibility, impulsivity, hyperkinetic behavior or activity decontrol, and disinhibition. The label often given to such behaviors is Attention Deficit with Hyperactivity Disorder (ADHD). Many children called hyperactive are attentive when their activities are of interest to them or when they are doing things that they can do. We must distinguish between the child whose hyperactivity is neurologically based and the child who is hyperreacting to stress.

Some children have attentional problems that are secondary to receptive language disorder or to a memory deficit. Some "hyperactive" youngsters simply have very high intensity temperamental attributes (Thomas & Chess, 1977). The importance of attention in learning cannot be overestimated. Attention means close or careful observing or listening. The child with a disorder of attention has difficulty in attending *selectively* to pertinent stimuli. Later in this chapter I will address the ways in which attention can be trained.

## DISORDERS IN THE FUNCTIONS OF PERCEPTION

A perceptual disorder is a defect in the way our mind interprets what we see or hear or take in through our other senses. Children with normal vision and hearing acuity may misinterpret or misperceive what they see or hear. The functions of perception can be related to the visual, auditory, tactile, kinesthetic, or other senses. Visual perception is often tied to movement and space while auditory perception refers to that which is temporal and sequential.

Some children may have a visual-motor mismatch. In trying to copy letters or shapes, they are unable to guide finger movements accurately according to what they see, and so drawing and writing are impaired.

Visuospatial perception is closely tied to children's growing organization of their physical environments, which is based on the vantage point of their own beings, whether objects are far from them or near, larger than they are or smaller. There may be confusion about direction—up and down, right and left, front and back. Children with learning disabilities may have difficulty tying objects into a unified whole; their possessions may be scattered in complete disarray. Lack of organization is a major problem. They may demonstrate persistent reversals or erroneous sequencing of letters and words when reading, spelling, or writing. They may also mix up their words, like Sheridan's Mrs. Malaprop.

> A great deal of learning is dependent upon early sensorimotor integration and perceptual maturation. Children learn first through their own movements and manipulations, which then become associated with the sensory information that they receive and perceive. Sensorimotor development occurs primarily in the first two to four years of life, but later academic learning is dependent upon the development and integration of these skills. Piaget (1952) wrote: "Sensori-motor intelligence lies at the source of thought, and continues to affect it throughout life through perceptions and practical sets. . . . The role of perception in the most highly developed thought cannot be neglected" (p. 326).

The child's coordination, language, attention, and perception are all interrelated. No learning disabled child is exactly like another. There is no single symptom; the symptoms occur in clusters and vary from child to child. The importance of any particular problem within the symptom complex can change as the child proceeds through school. Learning disabilities change over time and have lifelong effects.

> To summarize briefly, the four major disorders demonstrated by children with learning disability are disorders of fine and gross motor coordination, language, attention, and perception. These are not isolated but interdependent functions. They are present from birth through the lifespan of the individual in changing order of importance and in varying degree.

Special education principles and practices address these problems after a child has been identified in school, but I believe that intervention in the school-age years is too little and too late. Much can be done in early childhood education programs to prevent or ameliorate the anguish suffered by the children before assistance is provided in school. I believe that Montessori offers one answer for these children.

## MONTESSORI METHOD

Maria Montessori (1870–1952), the first woman to receive a degree in medicine from the University of Rome, has had a tremendous influence on the education of young children, yet she is rarely cited as the author or advocate of the large number of ideas and practices characteristic of her teaching, which are now standard fixtures in the early education scene in America. Dr. Montessori was strongly influenced by Rousseau and Pestalozzi; by Itard, a doctor at the time of the French Revolution who became the “father of otolaryngology”; and by the teacher and physician Edward Sequin, who was the first person to provide a thorough educational system for mentally defective children. Sequin’s book, *Idiocy and Its Treatment by the Physiological Method*, was published in New York in 1866. Montessori first applied Sequin’s principles of education to mentally defective children in Rome, during which time she also made her own modifications and amplified his theories until they were extended to the education of normal children.

Montessori became known for her lifetime endeavors on behalf of the child, developing a system of education that included programmed preparation for learning, unique methods, and the only systematic collection of educational devices, many of which are auto-educational. In an era when education was stereotyped and discipline in the schools was almost brutal, an era that exploited child labor and placed retarded children in insane asylums, she fought for early childhood education as well as for education of the retarded; she proposed revolutionary changes in curriculum and methods for teaching both retarded and normal children.

In her classic work, *The Montessori Method* (1912), she stated: “The method used by me is that of making a pedagogical experiment with a didactic object and awaiting the spontaneous reaction of the child” (p. 167). She thus went through a set of inductive operations and derived certain conclusions from her observations. She did not try to make the child fit any preconceived notions. Guided by the works of the pioneers, Itard and Sequin, Montessori designed and had manufactured a large variety of didactic materials. She states, however, that “unless these materials were rightly presented they failed to attract the attention of the deficient” (p. 170).

Both Sequin and Montessori believed that the basis of all work with children was primarily spiritual—that is, the love, respect, understanding, and patience of the teacher must awaken the spirit of the child. They

considered the moral preparation of the teacher to be the key to successful teaching. Both stressed that mechanical teaching, whereby the teacher follows the rules to the letter in using a particular apparatus, is rarely successful. It is still true today that materials and techniques are ineffective unless the teacher understands the reasons for their use and can also awaken the child’s interest in working with them.

There have been many modifications and adaptations of Montessori in America to accommodate cultural differences and change. The basic philosophy and principles of instruction, however, generally remain constant. It is not the purpose of this presentation to discuss the variations on the theme to accommodate the differing needs of children, but rather to point out how Montessori principles and practices pertain to the education of the high-risk child.

Montessori’s method is largely based on a concept described by Sequin (1907): “To lead the child, as it were, by the hand, from the education of the muscular system, to that of the nervous system, and of the senses . . . and then from the education of the senses to general notions, from general notions to abstract thought, from abstract thought to morality” (p. 144). In *Dr. Montessori’s Own Handbook* (1965), she states: “The technique of my method, as it follows the natural physiological and psychological development of the child, may be divided into three parts: (1) Motor education; (2) Sensory education; and (3) Language or intellectual education. The care and management of the environment itself afford the principle means of motor education, while sensory education and education of language are provided for by my didactic material” (pp. 49–50).

## PREPARED ENVIRONMENT AND EXERCISES IN PRACTICAL LIFE

Montessori believed that the child’s environment should be “prepared” and maintained by the teacher. She saw the teacher as the caretaker of the environment and as the child’s guide.

Montessori designed the furniture in the first Casa dei Bambini (Children’s House) to be light, child-sized, and easy for the children to move, arrange, or wash with soap and water. She believed that education should have as its object the development of independence in the child, and she stressed that every unnecessary aid to a child is an impediment. Thus, the “prepared environment” includes the opportunity for movement and motor training, and, of major importance, the provision for order. Children

are to be guided from the start by presenting them with activities that they are prepared to do, at which they can be successful, and that thereby capture their attention. The concept of order is particularly applicable to the education of children with learning disabilities.

The "prepared environment" contains objects designed through their use to achieve a definite purpose, to allow the child to carry out a real piece of work having a practical objective. These activities are called "exercises in practical life." Each activity is made up of a graded series of movements to be performed in logical sequence. Montessori broke down each exercise of practical life into "points of interest," specific points within each exercise to which the children's attention is drawn. As the children are taught each "exercise," such as washing hands, polishing shoes, or cutting vegetables, each step of the operation is presented by the teacher verbally and by demonstration in logical, orderly sequence. The children learn to focus their attention and to analyze their body movements as they repeat the sequence each time. As the children's attention is directed to proprioceptive and external cues, they are learning to recognize and to use feedback. All of this helps the children to develop efficient motor patterns as well as selective attention.

The Soviet research psychologists Zaporozhets and Elkonin (1971) found that to teach children how to carry out a complex task, one must make sure that they are also taught how to organize their orienting responses (attention). They must learn what to look at; their action must be directed to the right cues, both external and proprioceptive. Thus, they must learn to make use of feedback from the external situation and from their own actions; the teacher must help them to do this. Several experiments have shown that a task can be learned more rapidly if orienting behavior (attention) is specifically trained through motor mediation. The Montessori exercises in practical life involve both verbal and motor mediation and are invaluable aids in helping the child to attend and to coordinate movements.

The exercises in practical life, including exercises in social behavior, are described as follows: "the primary movements of everyday life such as walking, rising, sitting, handling objects; care of the person; management of the household; gardening; manual work; gymnastic exercises; and rhythmic movements" (p. 53). Montessori designed materials for learning to dress and undress such as buttoning, tying, hooking, and lacing. These materials, now found in most preschools, assist the child who has difficulty with fine-motor coordination as described earlier in this paper; they serve also as indirect preparation of the hand for writing.

The importance of the exercises in practical life cannot be overemphasized in working with learning disabled children. Through these exercises they can develop self-respect and some independence. The self-assurance that comes with the knowledge that they can care for themselves and their environment will help them to withstand the many difficulties they will encounter later in their academic struggles.

## SENSORY EDUCATION

Montessori provided much material for sensorimotor training. The sensorial materials are designed to attract children's attention, to "educate the senses," and to allow manipulation by children. The goal is to assist the children in creating order and sequence in sensory input by presenting a carefully constructed sequence of experiences that proceeds very slowly from the concrete to the abstract. These materials are grouped according to sense: auditory, visual, tactile, baric (weight), gustatory, olfactory, and stereognostic. They are subgrouped according to specific qualities such as sound intensity, pitch, form, dimension, color, texture, weight, taste, and odor. Contrasts are presented to the children first, then identities are established through matching and finally, gradations of quality are presented for further discrimination.

When one "educates" the senses, one is not trying to make the children see or hear or touch better, but is helping them to know what it is that they see, hear, or touch. By providing strongly contrasted sensations, followed later by various graded series of sensation, one teaches the child to discriminate. For example, if we teach them first red and then blue, then several shades of blue or several shades of red, we are teaching what is red and what is blue. At the same time they are learning to contrast, to compare and match, to discriminate, to distinguish different sense impressions, and to put them in some sort of order. This is the beginning of a conscious awareness of the environment as opposed to the unconscious knowledge they already have. As they isolate the sense impressions and the qualities perceived, the children gradually build up abstract concepts—first the general category of color, then redness and blueness, darkness and lightness, and so on.

The idea of always presenting two contrasting stimuli rather than a single one was derived, as were so many of Montessori's activities, from Sequin: "We must never confine to automatic memory what can be learned by comparison, nor teach a thing without its natural correlations and

generalizations; otherwise we give a false or incomplete idea, or none, but a dry notion with a name" (1907, 66). Sequin also developed the "Three Period Lesson" to associate an object or a quality with its name. The first period consists of establishing identity, associating the sense perception or the object with its name. The second period tests the child's recognition of the object corresponding to the name. The third period establishes that the child can recall the name corresponding to the object. During these lessons the teacher may work on correct articulation, and a good bit of repetition of the first two periods may be necessary before recall is accomplished. The interval between success in the second and in the third period (i.e., between recognition and recall) may be quite lengthy and provides a striking illustration of the amount of time and repetition required for a child to establish the associations so necessary in language development and learning (Richardson, 1969). Current educational practice of telling and testing is absurd, even for children without learning disabilities.

## LANGUAGE

Montessori effectively links language development with sensorimotor education, one facilitating the other. She did not devise a method for teaching reading. In fact, in her handbook, the table of contents does not mention reading; there is one section on the material for the preparation for writing and another on exercises for writing "alphabetical signs."

Written language is viewed as an extension of oral language: "To train the child's attention to follow sounds and noises which are produced in the environment, to recognize them and to discriminate between them, is to prepare his attention to follow more accurately the sounds of articulate language" (1965, p. 123). Such attention (listening) aids the child in the development of phonological awareness.

Children are taught the precise nomenclature for the sensorial materials, the names of the objects and words describing the specific attributes. For children with language learning disabilities this is imperative, because we know that one of the factors most characteristic is a deficit in naming. Sequin's Three Period Lesson is used for nomenclature. The children learn the language of forms and dimensions. They learn gradations of quality. For example, colors are graded according to tint and to richness of tone, silence is distinct from nonsilence, noises from sounds, and everything has its own exact and appropriate name.

Montessori stated: "The didactic material, in fact, does not offer to the child the 'content' of the mind, but the *order* for that content. It causes him to distinguish identities from differences, extreme differences from fine gradations, and to classify, under conceptions of quality and of quantity, the most varying sensations appertaining to surfaces, colors, dimensions, forms and sounds. The mind has formed itself by a special exercise of attention, observing, comparing, and classifying" (1965, p. 136). Such vocabulary building, with precision, is part of the preparation for reading and writing: "Language comes to fix by means of exact words the ideas which the mind has acquired. These words are few in number and have reference, not to separate objects, but rather to the order of the ideas which have been formed in the mind" (p. 137).

In current studies there is evidence that the underlying neuropsychological deficit in dyslexia appears to be a problem in phonemic segmentation or phonemic awareness skills. Thus, one can appreciate the significance of Montessori's early language exercises. The analysis of sounds relative to speech are essentially auditory-visual-tactile-kinesthetic exercises connected with the learning of the alphabet. Sandpaper letters are provided for the children to look at and trace with their fingers as they voice the sound of the letter, thus utilizing a multisensory approach. Later they will use a movable alphabet to build words; these are letters which the children can hold in their hands and manipulate themselves.

The multisensory approach to writing and reading was not new. Various forms of this date back to Plato (427–347 B.C.), who taught boys to write by tracing; Horace (65 B.C.), who taught children by means of pieces of pastry made in the shape of letters; and Quintillian (A.D. 35–100), who suggested learning the form and the sound of letters simultaneously (Richardson, 1989).

Montessori viewed graphic, or written, language as offering to the child an essential tool for communication with others as well as a means of perfecting spoken language. This reciprocal function of speaking and writing is an essential point that is overlooked in education and has surfaced only recently in language research.

Montessori saw that the indirect preparation for written language would include all of the child's previous experience: the exercises in practical life, which begin to prepare the hand for writing and which help to establish control of movement and eye-hand coordination; and the sensorial materials, which develop the child's perceptual abilities, visual and

auditory discrimination, ability to compare and classify, all of which are necessary for written language. Through practice, with the metal insets, the hand learns to control the pencil, and the sandpaper letters provide the kinesthetic sense with the memory for forms pertinent to written language. At the same time, sounding out the letters reinforces oral kinesthetic memory, increases auditory discrimination and auditory memory, and assists the child in the final perfection of speech itself.

Lieberman has pointed out quite clearly that if readers and writers are to use the alphabetic principle productively they must be aware of the phonological structure the letters represent. Lieberman also hypothesizes that the weakness in phonological awareness displayed by children who have difficulty learning to read may reflect a more general deficiency in the biological specialization that may process phonological structure in speech (1989). Difficulty in, or a lack of, phonological awareness is a cardinal sign of dyslexia or specific language disability. Lieberman (1989) also points out that phonological awareness can be taught. This can be seen in Montessori preschools where children are aided by the sensorial and language materials in their development of attention, phonological awareness, and subsequent reading achievement (Lillard, 1973).

Bradley and Bryant (1983) found high correlations between preschoolers' phonological awareness in response to writing tasks and their later reading and spelling achievement. Those children who were trained in the phonological classification of words and in phoneme-grapheme correspondence were superior later in reading and spelling to children who did not have this training.

When children work with the sandpaper letters, they are exploring the sounds of language and the shapes of the symbols for these sounds; this is neither an exercise in writing nor an exercise in reading.

Through their increasing ability to analyze spoken words into component sounds, and through their mastery of the association between sound and written symbol, the children are led into the process of building words with the moveable alphabet. This is a box divided into compartments that contain cardboard letters of the alphabet—the consonants in red and the vowels in blue. The moveable alphabet enables children to build words but, again, this material is not used to encourage reading or writing but simply the mechanical production of the children's words and later their phrases and sentences as well. Montessori says, "Touching the letters and looking at them at the same time, fixes the image more quickly through the cooperation of the senses. Later, the two facts separate: looking becomes

reading, touching becomes writing. According to the type of individual, some learn to read first, others to write" (1912, p. 325). Thus, when children place the cardboard letters in the sequential order in which they hear them in the spoken word, they can build a visual image of the written word for themselves. Then children are led to analyze the written word into its component parts, to articulate them, and to blend them together to form the spoken word—the process of mechanical reading.

Children who can compose a word with the letters of the moveable alphabet are not writing, but they are ready to write—they are prepared. To summarize, the basic steps in teaching the child to write are (1) indirect preparation of the muscular mechanism for holding and using the pencil; (2) use of the sandpaper letters to establish the visual-motor image of the graphic symbols and to establish the kinesthetic memory of the movements necessary to writing, associating these with the sounds of the letters; and (3) use of the moveable alphabet to compose words that are first "sounded out" by the child.

Montessori found that "in general, all children of four are intensely interested in writing" and that "writing is one of the easiest and most delightful conquests made by the child" (1912, pp. 293-94).

We have discussed briefly the development of writing and mechanical reading, or decoding. In order for the child to read with comprehension, however, further work of a different nature is required: "I do not consider as reading the test which the child makes when he verifies the word he has written. He is translating signs into sounds, as he first translated sounds into signs. . . . What I understand by reading is the *interpretation* of an idea from the written signs. . . . So, until the child reads a transmission of ideas from the written word, he does not read" (Montessori, 1912, p. 296).

When the child can read back the words he has made with the moveable alphabet, the teacher introduces the phonetics object game. A box is presented that contains small objects, each with a consonant-vowel-consonant combination, such as pin, cup, cat. The teacher writes one of the words on a slip of paper and asks, "Can you give me the one I want?" If so, the child can then take off, matching objects and labels. Most Montessori classrooms have an enormous number of these object games available, and the children love decoding the labels and placing them with the correct objects.

Next, phonogram cards and "puzzle words" (nonphonetic) are introduced and, later, the roots of words are explored. Usually the children are between six and nine years of age when they become interested in the source of words, although this isn't true of those with learning disabilities.

Gradually, the children begin to explore the functions of words. This is the first time that Montessori uses the term "introduction to reading." She states: "Before the child can understand and enjoy a book, the *logical language* must be established in him. Between knowing how to read the *words*, and how to read the *sense*, of a book there lies the same distance that exists between knowing how to pronounce a word and how to make a speech" (1912, p. 304).

The many grammar games first introduce "naming" words—nouns and their modifiers (articles, adjectives, and prepositions) and then the dynamic "doing" words—verbs with their modifiers (adverbs and prepositions). Finally, the children explore sentence analysis and composition. They learn the names of parts of speech, their functions, and place in the sentence.

Dr. Montessori believed that elementary school should begin with "children who possess, besides a perfect mastery of articulate language, the ability to read written language in an elementary way, and who begin to enter upon the conquest of logical language" (1912, p. 308). She was too wise to specify an age. However, our children with learning disabilities will move very slowly through the language exercises. In fact, it may be necessary for the teacher to lead such children by the hand into these areas when they are reluctant or resistant. The Montessori teacher should know the developmental stages of reading and how to extend or modify them as needed.

Montessori's method may have undergone modification and the schools may be quite diverse. The points I have raised should not be forgotten, however, because they pertain to the education of children who are at risk academically for any reason.

Children with specific language learning disability can profit from this carefully programmed sequence of learning experiences, from the concrete exercises in practical life to the final abstract acts of interpretive reading and writing. A multisensory approach is a requisite in the instructional approaches for children with language learning disabilities or differences.

There are many excellent multisensory remedial programs for children with dyslexia, most of which are offshoots of the Orton-Gillingham approach (Richardson, 1989). June L. Orton (1957) has summarized these approaches in two basic principles: (1) Start the language training with small units that the pupils can handle easily and then proceed by orderly steps from the simple to the more complex. Be sure to teach the blending of the separate units into syllables and words for recognition in reading and

recall in writing, (2) Use an "integrated, total language approach. Each unit and sequence is established through hearing, seeing and writing it" (p. 6). These various patterns provide for the individual differences among the students.

The similarity between these remedial approaches and that of Montessori are clear. Why then have we not initiated such preschool programs for children at risk academically, programs that can continue through the primary grades, or longer if necessary?

Not all children who have difficulty learning in the primary grades actually have learning disabilities. Many are overplaced, "unripe" youngsters who need more time for sensorimotor development. When the system insists on force-feeding them, they will soon look and act as if they have learning disabilities. It is, I think, a form of child abuse to allow children to fail the first grades of school before we find a label that will allow them to receive "special" education. We must not continue to punish children who can't learn what we want them to learn, in the way we teach them, and in the time we give them.

To recapitulate: Montessori's approach to early childhood education is developmental—it utilizes techniques and materials that would assist the intelligent child who demonstrates deviant development of coordination, language, attention, and perception—the child who is at risk academically. The sensorimotor foundations of language development are built in an orderly, logical fashion. Training is provided in the motor bases of behavior and learning such as posture and coordination, the development of directionality and laterality, and the development of body image. There is training in perceptual skills such as form perception, space discrimination, stereognosis (the ability to identify objects by touch or feel), and recognition of texture, size, and structure. The child receives training in auditory (listening), visual (looking), and kinesthetic perception (muscular memory of movement, positions, and postures). These provisions assist the child to develop the prelinguistic and preliteracy skills that are among the requisites for the development of symbolic language, spoken and written.

Montessori provided an environment prepared, physically and psychologically, for the child. We must insist that this be done for the child with a learning disability, whether in preschool, elementary school, or in the home; these youngsters require order and structure.

Montessori demanded humility and careful clinical observation on the part of the teacher. She had deep respect, a reverence, for children and their work. So must we all. Children with dyslexia and other learning

differences are only handicapped by us—by a system that fails to provide them with access to an appropriate education that meets their learning needs.

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# 9

## UNITY OF THOUGHT AND EMOTION IN MONTESSORI'S THEORY

The child should love everything he learns, for his mental and emotional growth are linked.

—Maria Montessori, *To Educate the Human Potential*

## COGNITIVE MODELS IN DEVELOPMENTAL PSYCHOLOGY AND EDUCATION

During the last three decades, developmental psychology has become a decidedly cognitive enterprise. Piaget no longer dominates the field as he did fifteen or twenty years ago, but another cognitive approach—information processing—has taken over. Inspired by the success of computer technology, information-processing psychologists believe that the workings of the mind can best be described in terms of encoding, storage, retrieval, and other computer concepts. Few disagree. Indeed, in a society as committed to computer technology as ours, computer models of thinking are likely to be popular for years to come.

A major consequence of this new cognitive trend has been the separation of thought from emotion. For example, information-processing psychologist Robert Siegler (1983) observes that computer models have difficulty capturing emotions: "People's feelings of love, hate, anger, fear, and joy are perhaps the ways in which they differ most from computers" (p. 201). But Siegler is unfazed. He says it will be quite sufficient for computer models to explain cognitive functioning, and he assumes that computer models do not need to refer to emotions to do so.

Some psychologists, to be sure, believe that computer models can account for emotions—if not now, in the future (Johnson-Laird, 1988, chap. 20). But one wonders how successful they will be. The information-processing picture of humans is fragmented; it typically views people as

bundles of fairly independent computational devices. Many information-processing theorists (e.g., D. A. Allport, 1980; Jackendoff, 1987) even doubt that people possess anything like a self, even though people normally sense that they possess some core self or self-identity that is at the center of their emotional lives (G. W. Allport, 1961, p. 127; White and Watt, 1981, pp. 148–52).

In any event, at present the vast majority of information-processing psychologists are content to concentrate on cognitive processes. As Sigel (1986) has noted, one can read important collections of essays and literature reviews in this field (e.g., Sternberg, 1984; Klahr, 1989) without coming across terms such as *emotion* or *affect*.

In education, the latest cognitive trend is the “thinking skills” movement (Costa, 1985). Here again, writers generally assume that they can focus on cognitive processes without much reference to emotions.

Thinking skills programs typically have a clear goal: they want to teach students the rational, analytical thinking tools they will need as adults in our increasingly technological world. Pursuing this goal, the programs divide thinking into numerous specific “skills,” such as observing, predicting, sequencing, and hypothesizing. Some programs list more than one hundred skills. The programs then attempt to teach the skills one at a time.

As a rule, thinking skills specialists do not devote much attention to the theoretical assumptions underlying their programs, but they almost invariably see themselves as part of the new, computer-inspired cognitive revolution. Whenever possible, they sprinkle their writings with computer terminology (for example, using headings such as “input skills” and “output skills”) and they often attempt to teach overarching cognitive strategies, such as goal-setting and self-monitoring, derived from computer technology (see, for example, Costa, 1985, chap. 12 and 13).

Some thinking skills specialists refer to the emotional aspects of thinking, but they generally assign feelings and attitudes a peripheral role (see Nickerson et al., 1985, pp. 337–40). For example, Arthur Costa is a thinking skills authority who is unusually sensitive to the importance of emotion, but he does not really integrate it into his model. In one essay (1985, chap. 20), Costa prints a physicist’s account of what he did and how he felt when working on a problem in optics, and Costa provides his own running commentary “intended to illuminate the mental processes that are prerequisite and pervasive throughout the scientific process of inquiry” (p. 114). What is striking is the difference between the two accounts. Whereas the scientist’s self-report is full of emotional drama,

Costa’s comments focus primarily on cerebral processes. The scientist writes that he at various times “hurried to the lab,” “struggled with alternatives,” “became disgusted with the whole affair,” “was struck with another idea,” again “hurried to the lab,” and was “thrilled” by the outcome. During all this, Costa primarily sees the scientist formulating, rejecting, and accepting hypotheses. For example, when the scientist says, “My theory was no good, and I went to bed disgusted with the whole affair,” Costa comments, “He rejects his theory.” When the scientist says, “This time it worked!” Costa says, “The data he collected supports his explanation” (1985, pp. 115–17). Costa’s analysis notwithstanding, what distinguishes the scientist is not his use of hypothetico-deductive reasoning, but his intense, personal involvement in his work.

Indeed, as numerous creative people have reminded us, it is a passion for one’s work, above all else, that is essential. Einstein likened the mind of the creative physicist to that of the “religious worshiper or the lover.” The creative scientist, he said, could not possibly put forth the tremendous daily effort that the work requires unless the effort comes “straight from the heart” (Hoffmann, 1972, p. 222). Creative people in other fields have made similar comments (John-Steiner, 1985). Yet emotion is today neglected.

The second-class status of emotion in current educational policy is illustrated by a recent report of the New Jersey School Boards Association (Seiden, 1989). Studying the impact of standardized testing on New Jersey schools, a school board committee expressed concern that “teaching has become mechanical; school has become more boring; love of learning is not encouraged by emphasis on passing tests” (p. 4). Nevertheless, the committee recommended changes that would increase the impact of standardized testing. Testing, the committee decided, had improved basic skills, and basic skills are “the most important thing that students should learn in school since these are the tools necessary for all further learning” (p. 5). Apparently the committee overlooked the possibility that by the time students have mastered a sizeable number of basic skills they will have lost all interest in further learning.

## THE ROLE OF EMOTION IN PIAGETIAN THEORY

From the perspective of traditional developmental theory, from Rousseau to Dewey and Piaget, the current neglect of emotion is unfortunate. In Piagetian theory, for example, emotions—especially interest and

curiosity—are the driving forces behind developmental change. Children become interested in things and ideas that they cannot quite fit into their cognitive structures and are therefore motivated to change their structures to incorporate them. For example, a baby girl who tries to grab a piece of chalk might find that it keeps slipping from her palmar grasp. The baby's difficulty challenges her to try new ways of grasping, and in the process she constructs new structures for dealing with the world.

In a sense, the centrality of emotion in Piaget's theory is easy to overlook. Piaget devoted a great deal of attention to the logical and mathematical features of his stage structures, and these descriptions are theoretical and dry. He spent far less time on the process of cognitive change, which is where emotions such as interest and curiosity come into play.

Piaget's writings on education (1971, 1973) were relatively sparse, but his concern for emotions, attitudes, and personal characteristics was clear. In these writings, Piaget hardly mentioned cognitive structures. He emphasized, instead, children's need to think for themselves. Children cannot develop mentally, he said, if they are dominated by adults—if, as Kamii (1973) puts it, they must believe that the answers must "always come from the teacher's head" (p. 234). Children must figure out problems for themselves, and they will do so only if the problems are sufficiently interesting to set their minds in motion. Thus, the goal of education becomes that of fostering interest and independence—of producing people who do not merely accept what others tell them, but who are "creative, inventive, and discoverers" (Piaget, 1964, p. 5).

Constance Kamii, a Piagetian early childhood specialist, says that with respect to learning,

we would like children to be alert, curious, critical and confident in their ability to figure things out and say what they honestly think. We would also like them to have initiative; come up with interesting ideas, problems, and questions; and put things into relationships (1980, p. 12).

Here again, the emphasis is on children's feelings and attitudes toward learning, not on school subjects such as math or reading, or even on Piagetian capacities such as classification or seriation.

## EMOTION IN MONTESSORI'S THEORY

Montessori would not have disagreed with the Piagetians. From her perspective, however, the Piagetian view of the emotions involved in learning is still a bit cerebral. For Montessori, the child's emotional involvement in

real learning goes to the very core of the personality, to the child's "innermost self" (1967, pp. 102, 218), or, as she sometimes said, to the child's very "soul" (e.g., 1967, pp. 9, 62, 272). To demonstrate her point, she often called attention to the child's early language learning.

## LANGUAGE ACQUISITION

Montessori, anticipating Chomsky (1965), observed that the child's ability to master a human language is an amazing fact. What is most incredible is not just the development of an enormous vocabulary, but the mastery of a grammar—a set of rules for putting words into their proper order. These rules are in all languages so complex and abstract that linguists are still trying to figure them out. Nevertheless, children spontaneously acquire a working knowledge of most of them by the age of five or six years.

To explain language acquisition and other learning in the first six years, Montessori proposed the concept of the absorbent mind—a special power that enables children to tirelessly incorporate aspects of their surroundings.

In the first three years, Montessori said (1967, pp. 6–7, 167–68), children absorb the environment in a largely unconscious and profound manner. They become so moved by certain impressions that they take them into themselves and in this way build core elements of their personalities. This process, Montessori emphasized, is not just mental. Certain impressions "awaken so much interest and so much enthusiasm that they become incorporated into [the child's] very existence. The child *absorbs* these impressions not with his mind but with his life itself" (1967, p. 24). Montessori proposed that a "biological or psychochemical change" (p. 101) takes place as these impressions "incarnate" themselves into the child's innermost self (pp. 62, 102).

Through the absorbent mind, then, infants and young children begin acquiring basic aspects of their language. The sounds of speech, Montessori hypothesized, make far deeper impressions on infants than other sounds. "These impressions must be so strong, and cause such an intensity of emotion—so deep an enthusiasm as to set in motion invisible fibers of his body, fibers which start vibrating in the effort to reproduce those sounds" (1967, p. 24). Montessori would have been gratified by the research of Condon and Sander (1974), whose careful film analyses showed that newborns almost imperceptibly "dance" to the sounds of human speech, but not to other sounds.

In any case, we see that early language acquisition, in Montessori's view, is hardly just an intellectual process, which is what learning so

frequently is for adults. Children need language—and positively yearn for it—to build their psychic structures. The impressions the child receives, Montessori said, “are not just remembered; they form part of his soul” (1967, p. 62).

At the age of about three years, the first period for the absorption of language ends. Between three and six years, children still have a special ability to absorb language—they are still in the sensitive period for language acquisition—but their efforts are now more conscious and deliberate, and they no longer absorb the fundamental structures of language so deeply into their psyches.

Because Montessori believed the first period is the more powerful and mysterious, she searched for analogies to describe it. In one passage (1967, p. 112) she likened the early absorbent mind to the process by which photographic images are permanently imprinted on a plate. She was not entirely satisfied with this metaphor, but the related concept of imprinting, as used by ethologists, seems apt. Imprinting is the process by which the young in many species fill in irreversible images during an early critical period. For example, mallard ducklings, during an early period of intense searching and following, form a permanent image of their mother-figure, whom they will follow for months thereafter. In a like manner, human infants, during an initial period of intense concentration, form a deep and lasting imprint of the basic patterns of their mother tongue (see Leyhausen, 1973, and Crain, 1992, pp. 34–37 for discussions of imprinting and imprintinglike phenomena).

Although early language learning is the most impressive example of the absorbent mind, the concept also applies to other learning in the first three years. Through the power of the absorbent mind, Montessori (1967, pp. 63, 102) said, children acquire the musical patterns and the distinctive physical gestures and expressions that form part of their cultural identities. Children also develop a deep identification with their native geographical surroundings. For example, adults who grew up by the sea frequently feel most relaxed and at home when they return to the seashore. They feel that the sea is somehow a part of them, that it is “in their blood.” It is as if they have imprinted upon it. It has become a basic part of their personal identity.

## INTEGRATING THE PERSONALITY

During the first three years of life, when children are absorbing impressions unconsciously, their various capacities develop separately. For example,

language develops separately from control over the limbs (Montessori, 1967, p. 165). During the next three years, children organize their capacities, and they work with great intensity on tasks that enable them to do so. For example, by cutting vegetables with precision, they coordinate hand, eye, and mind. Through writing and drawing, they organize language with hand and eye (p. 203).

During this period, the child's activities become more conscious and deliberate. Whereas younger children frequently act as if they are governed by an impersonal force as they take in the world about them, three- to six-year-olds seem to be exercising their wills. The child in this age range, Montessori said, “is now guided by his conscious ‘I,’ his personal self, and we see that his hands are busy” (p. 167).

Vygotsky (1934), whose work has recently generated wide interest, described how children of this age use speech to consciously regulate their actions. While working or playing, they frequently talk aloud and give themselves directions. For example, a boy says, “Where's the pencil? I need the blue pencil. Never mind, I'll draw with the red one and wet it with water. It will become dark and look like blue” (p. 30). The child talks aloud to solve the problem and guide his actions.

Paradoxically, at the very time when children are gaining conscious control over their actions, their work is most profoundly characterized by a capacity for deep concentration in which they seem to lose self-consciousness. When children find tasks that enable them to integrate their separate capacities, they often become completely engrossed in them, entering into a kind of meditation (Montessori, 1965, p. 220). Montessori frequently told, for example, about the little girl whom she first saw become totally absorbed in work with cylinders. The girl couldn't be distracted as she repeated the exercise over and over, and when she finally finished the exercise, she appeared fresh and rested, as if awakening from a pleasant dream (1970, pp. 53–55; 1972b, p. 119).

The child who concentrates deeply, Montessori argued, is not merely satisfying her curiosity or learning in any narrowly cognitive sense. The child is achieving a new psychic integration; she is unifying her personality as a whole. The depth of the personality transformation is evident in the child's emotional behavior. Before children learn to concentrate, they are restless and distractible. “The hand moves aimlessly; the mind wanders about far from reality; language takes pleasure in itself; the body moves clumsily” (1967, p. 203). Energies go off in separate directions. The child behaves as if she lacks a personal center of gravity.

Children who have learned to concentrate, in contrast, act as if they have found themselves. They are happy and possess a new serenity, an inner assurance that comes from their knowledge that they can now bring all their energies to bear on focused work (1967, p. 75).

The inner fulfillment achieved through concentration also seems to release affectionate feelings outward to others. When children enter into states of deep concentration, they are oblivious to their surroundings. For the time being, Montessori said, the child's "spirit is like that of a hermit in the desert" (1967, p. 272). But when the child

... comes out of his concentration, he seems to perceive the world anew as a boundless field for fresh discoveries. He becomes aware of his classmates in whom he takes an affectionate interest. Love awakens in him for people and for things. He becomes friendly to everyone. (1967, pp. 272-73)

It is apparent, then, that concentration produces a major personality transformation. Montessori said that concentration "normalizes" the child; it enables children to integrate their capacities and their personalities and to become more truly themselves (1967, pp. 204-7).

In some ways, the concentration of early childhood is unique to this period. In contrast to adults, young children put as much effort as possible into their work, probably because the effort solidifies and unifies their powers. Nevertheless, the power of concentration is retained in highly creative individuals, and Montessori said that we all need creative work, into which we can pour all our energies, to actualize our potentials and express our individuality (1972b, p. 186).

## EMOTIONAL DISTURBANCES

I have highlighted ways in which cognitive development is, in Montessori's view, a very emotional process. When children learn language, they are profoundly moved by the impressions they receive, and when they find tasks that enable them to coordinate their separate capacities, they enter into states of deep concentration, from which they emerge refreshed, tranquil, and friendly. Children display such a range of emotions because they are developing not just their minds, but their whole personalities.

In fact, Montessori believed that cognitive development is so directly related to the growth of the whole personality that when cognitive work is

impeded, emotional disturbances result. In this section, I will outline Montessori's view on how healthy development goes awry and emotional disturbances arise.

Healthy development, Montessori said, comes from within. It is not adults who mold and form children; children construct their own minds and selves through their own efforts. In this process, an inner biological guide prompts them to select from the environment the activities they need and to work tirelessly on them. Adults provide an environment that gives children opportunities for self-development, but the work must be done by the children themselves (1970; 1967, chap. 22-26).

Unfortunately, this is not the way things usually happen. Adults are frequently insensitive to the objects and activities that children need, even though children's spontaneous interests usually make these readily apparent. Moreover, adults constantly interfere with the work the child finds meaningful. If a child is exploring an object with her hand, she is told, "Don't touch." If she is trying to feed herself, an adult comes along and feeds her (Montessori, 1965, p. 20). If she is trying to walk at her own pace, taking pleasure in her growing power, an adult swoops her up, puts her in a stroller, and moves her along (1972b, p. 77).

In Montessori's view, children are small, delicate people surrounded by giants who dominate and control them. Because children's activities are prompted by an inner, vital need to develop themselves, they experience the adult's domination and intrusiveness as severe violence. The child, Montessori said, might well think: "Why does she, whom I love so dearly, want to annihilate me?" (1965, p. 193).

Adults also undermine the child's independence through the use of rewards and punishments. Teachers, for example, try to motivate children through praise, good grades, criticism, threats, and so on. These external inducements usually make learning a miserable experience. Children become so worried about external evaluations—so afraid of getting wrong answers or looking stupid—that they cannot concentrate deeply on their work. Moreover, external evaluations take children away from themselves. Children begin looking to grownups to determine if they are giving the right answers. Soon they turn to others to know what they are supposed to do and say. Rewards and punishments socialize children into the conventional social order, but they drown out the inner voice that guides them toward the full development of their potential (Montessori, 1972a, pp. 14-18).

When children are deprived of the activities they need to develop themselves, Montessori said, they display various "deviations" or emotional problems. Montessori's descriptions of these problems was extremely impressive. Without missing a beat, her writing moved into psychoanalytic theory, as if it were second nature to her. Some of Montessori's thoughts on emotional problems were in an Adlerian vein. For example, she pointed out how children sometimes respond to adult domination by using their own weakness to exploit the adult. Children use their tears, entreaties, melancholy looks, and childhood charm to get adults to do their bidding (1972b, p. 165). More fundamentally, though, Montessori's discussions frequently anticipated the imagery and spirit of contemporary self-psychology, especially that of D. W. Winnicott.

### Montessori and Winnicott.

Before outlining their shared views on pathology, it would be useful to give a brief introduction to Winnicott's theory of normal development. Unfortunately, Winnicott's writing, while poetic, was so unsystematic that it would be impossible to do so in any short space. But I would like to make a couple of general points.

Winnicott is currently popular among psychoanalysts for his insights into the development of the healthy self, which he thought of as the sense we get when we are not complying with others' expectations, but are acting spontaneously and creatively. At such times, we feel that we are most real and are expressing our true nature (Winnicott, 1971, pp. 54, 68-69; 1965, pp. 145-48). This view resonates well with that of Montessori, who also emphasized our need for creative work to draw upon our full powers and express our individuality (1972b, p. 186).

This is not to say that the views of Winnicott and Montessori on creativity and development were identical. Whereas Montessori saw healthy development occurring primarily through work with physical objects, Winnicott focused on the mother/infant relationship. Winnicott also had a much higher regard for the benefits of imaginative play.

Nevertheless, their overall orientations to normal development were strikingly similar. Both believed that the impetus for healthy development comes from within; children are biologically motivated to organize their capacities and develop a coherent sense of themselves as creative beings. Both hoped the environment would facilitate this process, but both worried about the ways in which adult neglect and interference impedes

healthy development. The following are some of their shared impressions of what can happen when things go wrong.

1 Winnicott said that when adult interference is severe, depriving children of the spontaneous experiences they need to develop themselves, children often feel threatened with "annihilation" (1975, p. 303). Montessori, as we have seen, suggested the same thing (1965, p. 193).

2 Winnicott (1965, p. 150) observed that when children have been unable to integrate their personalities, they often manifest outward symptoms of restlessness, distractibility, and a lack of concentration. Montessori pointed to the same symptoms, arguing that what children need are opportunities to concentrate deeply on work that will enable them to bring their capacities together (1967, pp. 203, 265-67).

3 Both Winnicott and Montessori saw many childhood behavior problems as the children's effort to protect their growing selves from adult intrusions. For example, both questioned the common assumption that childhood disobedience indicates some problem in children. Instead, rebelliousness may represent a positive effort by children to protect their right to self-construction. Rebellious children may be fighting against domineering adults who prevent them from developing their will and their character (Winnicott, 1986, pp. 65-70; Montessori, 1965, p. 29).

4 Winnicott observed that many of his patients (both child and adult) had reacted to adult intrusiveness by creating an "inner hiding place" to keep their true selves and feelings concealed from others. He believed that we all do this to some extent: "At the center of each person is an incommunicado element, and this is sacred and most worthy of preservation" (1965, p. 187). Some patients, however, need to wall themselves off from others to a strong degree.

Similarly, Montessori saw many children building "psychic barriers" against the world. Externally, these children seem dull, listless, and unresponsive. But they are really barricading themselves against adult intrusions. They refuse to listen to those who would prevent them from following their inner urges, and they build an inner wall "which closes the spirit and conceals it as a defense against the world" (1972b, p. 160).

5 Perhaps the most characteristic disorder of our time does not always appear to be a disorder at all. This is an excessive conformity to social expectations. Winnicott observed that even healthy individuals conform to social pressures to some extent; they frequently compromise between behavior that reflects their true feelings and behavior that others expect.

In Winnicott's terms, people compromise between the "true self" and the "false self" (1965, ch. 12). The problem is that in recent decades mental health professionals have increasingly found themselves treating clients whose false or socially compliant selves are far too dominant. These clients, suffering from "narcissistic personality disorders," report feelings of inner emptiness, fragile self-esteem, and a preoccupation with how they appear in the eyes of others (American Psychiatric Association, 1987, pp. 349-51; Lasch, 1979, p. 81).

Montessori, you will recall, pointed to the development of the same general problem in her discussion of rewards and punishments (1972a, pp. 14-18). When we try to motivate children through external inducements, we make them dependent on the approval of others. Children begin looking outside themselves for the sources of truth and stop relying on their own judgment. Through rewards and punishments, we enslave children to the conventional social order, teaching them to think and behave as they are supposed to, regardless of their true feelings (Montessori, 1972b, pp. 175-76).

Montessori was particularly concerned about this last problem—an excessive dependence on the approval of others—and she believed her schools were counteracting it. In her schools, children were finding deep gratification in intrinsically meaningful work, and they were making their own discoveries. Thus, they had no reason to look to adults for rewards or for right answers. They were becoming self-assured and independent. In fact, Montessori noted that children who graduated from her schools frequently got into trouble because they spoke their minds instead of saying what others wanted to hear (1972b, pp. 170, 175).

Why, though, is the need for social approval apparently on the rise today? An answer would require sociological analyses, and neither Winnicott nor Montessori went into such analyses in any detail. But Montessori did point to the lack of intrinsic satisfaction in modern work. Most employees, she noted, are motivated solely by external inducements, such as promotions and social status (1972a, p. 14; 1972b, p. 186). In addition, the recent increase in service professions may be a factor. In today's people-oriented occupations, what one produces counts for less than the impression one makes on others (Lasch, 1979, p. 96). Thus, the occupational world increases people's feeling that only external approval really matters.

Sociological speculations aside, what I want to emphasize here is how much Montessori had to say about the central disorders of our time—disorders in which people fail to develop a solid sense of themselves as

independent, creative individuals. The fact that Montessori anticipated several of Winnicott's key insights into the disorders of the self shows that her theory went far beyond the realm of the intellect alone and spoke to the development of the whole personality.

## THE COSMIC PLAN

So far, my discussion of Montessori's developmental theory has been confined to the behavior and experiences of children from birth to six years of age. At the age of six, Montessori said, children undergo a change. They are no longer so energetically engaged in work that primarily develops and integrates their own capacities. Instead, their focus turns outward. They become interested in exploring nature and the social environment. Most fundamentally, there is a kind of philosophical awakening, a sensitivity to what is good and noble (Montessori, 1948).

To meet this sensitivity, Montessori proposed a curriculum centered around the cosmic plan, a history of the earth and its life forms in which everything the children study fits into an interrelated whole. The cosmic plan tells a majestic story of progress designed to inspire children as they learn. "Our aim," Montessori said, "is not merely to make the child understand, and still less to force him to memorise, but so to touch his imagination as to enthuse him to his inmost core" (1948, p. 15).

This kind of inspiration seems terribly important. The most creative people possess, in addition to the young child's powers of concentration, an enthusiasm for their work that has a kind of spiritual element. Creative people work with such intensity because they are reaching for something more noble or beautiful than has yet been expressed or produced (John-Steiner, 1985, pp. 60-68).

The specific content of the cosmic plan, however, is no longer persuasive. The plan combines an appreciation of ecology with an enthusiasm for technological progress. Today, the contradiction between these two themes is very clear: technological progress has occurred at the expense of the natural environment. As humans have created their industrial and technological wonders, they have poisoned the air, polluted the waters, destroyed large forests, and brought numerous species to the point of extinction. Ecologists wonder whether the planet will remain habitable for future generations.

Today, those embracing environmentalism tend to be romantics who sometimes speak in the same poetic terms that Montessori did. Like her,

they would say there is something that "emanates from trees which speaks to the soul" (Montessori, 1976, p. 35). The proponents of technology, in contrast, would never use such words. Indeed, as noted in the beginning of this paper, many computer-oriented psychologists do not even believe that humans have anything like an inner self or a unified personality—a view that seems to be spreading to college-age computer enthusiasts (Turkle, 1984). The proponents of computer technology also would bring computers into the schools in an extensive way, even though computers lock children into a closed, mechanical world, isolating them from nature and full interactions with others.

I believe that today Montessori would reformulate the cosmic plan. Nevertheless, such a plan is needed. Students need the feeling that their studies will put them into contact with ideas that are meaningful, beautiful, and ennobling. Thus inspired, they will become deeply involved in their work.

## SUMMARY

In recent years, developmental psychology and education have been strongly influenced by computer models, which generally neglect the emotional aspects of thinking. Piagetian theory recognizes the role of emotion in cognitive development, but an especially rich account of the emotional nature of cognitive development is found in the work of Montessori.

Montessori suggested, for example, that the child's acquisition of language, a highly symbolic activity, begins as an intensely emotional, physical process. Patterns of sound make profound impressions on young children, and they absorb these impressions into their "innermost selves."

The emotional intensity underlying cognitive development is also seen in the way three- to six-year-old children concentrate so deeply on tasks that enable them to integrate their cognitive capacities. This concentrated effort produces a new serenity and self-assurance in the child and releases affectionate feelings toward others.

Montessori believed that the child's spontaneous cognitive work so directly affects the development of the whole personality that adult interference with this work creates emotional problems. Her descriptions of these problems, moreover, anticipated central themes in the psychoanalytic self-psychology of D. W. Winnicott. Like Winnicott, for example, Montessori called attention to the ways in which children barricade themselves against adult intrusions, hiding their spontaneous feelings within.

Both theorists also were concerned with the ways in which people lose faith in themselves and their powers and become slaves to social approval.

Developing a curriculum for children after the age of six years, Montessori tried to inspire students with a majestic story of nature and human progress. Today we can question Montessori's unbridled admiration for technological progress, but we cannot question the need for a curriculum that inspires love and enthusiasm for its subject matter.

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