Early Detection: Blessing or Curse

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The Dilemma of Early Detection

Within the medical model, early detection is an important component in the development of preventive services and treatment strategies. The basic tenant of this approach is that the detections of the first of a given condition can be considered as predictive of a more fully developed pathological condition in the organism. When this model is applied to conditions such as cancer, cardiopulmonary distress, or cerebral conditions, it's major goal is the prevention of the full development of the condition, by responding proactively to the early detected signs.

The assumption is that the early detection makes possible that the preventive steps to be taken may have iatrogenic effects, but compared to what may happen as the full fledged condition comes to expression, it can be considered a risk well worth taking, and to have a meaningful priority of action. Furthermore, early detection based on the medical model has very rarely, or at best, places very little implication or attention on dimensions of the social life of the person so detected. In particular, there is a restricted likelihood that it affect the nature of the relationship between the individual and affective environment. The circumscribed focus on the problem of concern, in appropriate applications of early detection activities, helps to increase emotional engagement, commitment, and a sense of positive mobilization. In this manifestation, early detection represents a true blessings.

There may be cases where early detection, even in the medical model, may represent a danger. It can represent an over interpretation of the seriousness of the condition, or a misinterpretation of the condition. Representation of a trauma may be painful, but it may not be indicative of a more pervasive condition. In spite of this, its value is that it may mobilize the participants in the case of children, the parents, caregivers, other professionals to be more adaptive and responsive than they might have been where not such a "severe" condition been diagnosed and predicted.

The Risks: However, the extension of the early detection model to areas related to the psychological, mental, and developmental conditions creates a large number of questions as to the nature of the effects that early detection may have. There are two types of risks present in early detection. In the first type, produced by the use of minimal signs in order to from a diagnosis, there is a potential to over-attribute the meaning of certain signs as representing types of syndromes which are viewed as totally encompassing, affecting wider ranges of behavior and personality. Early is meant here not only in the sense of early appearance, but also in the sense of over interpretation. Thus the first caution: too early interpretation creates overextensions of certain syndrome, by using a strategy of pars pro toto (parts as whole).

A second type of risk in early detection is in using certain signs, developmental milestones, appearing at early stages, or in a delayed or inadequate way in the individual, and projecting from them as to the developmental propensities (on a normative basis) extrapolated over the individual's lifespan. This approach thus predicts the nature of the curve, and is our second very serious caution.

The early detection of developmental signs, delayed or insufficiently apparent, are related to the existence of norms to which individuals can be compared, in terms of times of development, or according to stages of development (in the sense of Piaget). Such expectations or phases consider the appearance of certain cognitive functions as occurring in a given and relatively fixed order, or in a specific configuration, and as acting as preconditions for subsequent appearances at further given levels. Such norms are considered predictive of development in particular those related to metal age, the IQ, and stages of development. This is the concept of developmental milestones. Such concepts, and approaches based upon them, create conditions for interpreting certain deviations from these norms as signs which indicate the developmental curve for the individual, or the individual's rank order in relation to the developmental norm. In this regard, some syndromes incorporate within themselves a conceptualization of developmental norms, and in this context, early detection can set a series of predictions in place which are based on the nature of the conceptualized syndrome.

The attempt, therefore, to apply the medical model to the cognitive, mental, and behavioral development of human beings represents potentially great risks. While the medical model is clearly a legitimate approach to prevention, as we affirm above, one must be very careful when one is projecting to conditions related to mental processes, or those which may have some reasonable connection to physical and biological conditions, but also represent the products of social, cultural, emotional, and behavioral environments. In these applications, early detection becomes of questionable value if not an outright source of danger.

The Context: What are our reasons for such a position? The answers lie in where and when early detection occurs. To what will it lead? What kinds of interventions does it elicit? How will it affect the interaction of the child with the environment? There are a number of conditions under which the early detection of the mental, behavioral, or emotional dimensions of a child's development or functioning may become really dangerous.

We believe that there are three major contributions to human development: what we have termed a triple ontogeny. We identify the biological, the cultural, and the interact ional elements of human experience as being the crucial determinants. The first ontogeny is that of the biological, with particular emphasis on the newly available evidence on the relationship of behavioral development and the potential for changes in the brain (the new neurophysiological sciences). The second is that of the cultural elements of the environment to which the child is exposed. The third ontogeny is that of medicated learning experience, which we postulate as the pivotal interactive condition to integrate and elaborate the human being's social and biological development. The biological nature of the human being represents the human organism as a community of cells which individualizes its existence, and the social nature of the human beings makes the individual strongly affected by the cultural context in which he / she exists. When we try to use criteria from manifest and static (in time and place) aspects of functional responding, and give them the value which then predicts the future, we expose ourselves to a very serious dilemma. To what extent can we consider elements which are so diverse in different cultures, as reflecting types of developments which are to an important degree biological? In other words, to what extent can we ascribe an attribute as having biological value when it reflects a mental, social, or cultural phenomena. We will elaborate on aspects of all three ontogenies as we continue our discussion of the issues of early detection.

Some Examples Which Illustrate the Development Conditions: Let us take two examples from different perspectives. Children of the Navaho people (Native American indigenous population) start to walk at age 6-7 months. At one year they dance the war dances of their people with great agility, such that is not observed in children of similar chronological age in other cultures. The Navaho will consider a child who does not walk at 6 months, and does not dance at one year, as deviant. The culture (parents, community, etc.) encourages, imposes does everything to guarantee that the child will be able to walk and dance on time. If it does not occur, the deviance is detected by signs that are ascribed not only to the child, but also to the culture. This illustrates the importance of linking the early detection of certain mental, behavioral, and emotional

manifestations with their cultural context. The child with Down's syndrome is another excellent example of the potential dangers of early detection. What is the great danger in ascribing to the child with Down's syndrome certain mental characteristics? It is obvious that the child will be detected early, due to the immediately perceived physical characteristics at birth. The birth of the child produces in the parents a feeling of cataclysm in their lives, often followed by a state of marasma, a state of mourning, producing a state of alienation between the child and his / her familial environment. The parents ask themselves, " Is this our child? He doesn't resemble any of us." This inevitable early detection pervasively affects the life of this child. And so for many years, the early detected Down's syndrome child, because of his / her appearance, and the widely held negative projections for him / her, becomes a reason for rejection, abandonment, or in the best cases, a passive acceptance. In such cases, the child is not offered any kind of stimulation needed to grow and develop, and exercise the potential to overcome the meaning of the signs of the syndrome. The reality, which we have come to know and demonstrate in recent years, is that the child because of the slowness in responding and development inherent in the biological system- needs (and is capable of responding to provided the stimulation is given that is usually offered) much more stimulation, in terms of intensity, amplitude, and repetition. Given such stimulation the child may well outgrow and overcome the difficulties inherent in the condition. However, if the early detection becomes a source of reduced expectations, such children will receive less stimulation, and their early detection becomes a curse.

Another interesting example comes from our experience with the child with Down's syndrome. These children, from ages 8 to 20 were unable to strike a match. Parents considered their children using matches as dangerous because they were not able to blow out the match. Their hypertonic peribucal (shaping the mouth and blowing) development prevented this. As we noticed this, and considered its implications for the children's social and functional development, we taught the child how to strike and hold the match so as not burn the hands, and to shake it with the arm to put it out. The child then has a socially important skill, and an achieved sense of competence.

In the case of the child with Down's syndrome, early detection was for a long time coupled with the contention that there is nothing to be done because it is a chromosomal disorder which cannot be effected by intervention. Early detection thus becomes a source of lack of development due to stimulus deprivation. Perhaps this will be compensated by a reaction formation of the part of the parents- they accept the condition, love the child in an unconditional way, do not attempt to make any changes in the life of the child, ultimately resigning the child (and themselves) to custodial, institutional care, or a life of very limited functional potential.

The Consequences of Early Detection

The examples above illustrate the kinds of concerns that are raised regarding early detection. There are many types of conditions which are often detected too early, either in the amount and nature of the observed signs and / or in the sense of timing. If the meaning of a particular sign is extended in a pervasive way, which them becomes the source of treatments, placements, reduced expectations, according to the projections from the early detection (often according to traditional conceptualizations or available resources in the community), then restricted opportunities to change are put in place, and the danger is a very low quality of life. Certainly lower than what is potentially possible under conditions of higher expectations, engagement and effort in stimulation, and active interventions. It is our contention that many of the signs which are considered as representing the existence of mental retardations of various kinds, and are related to conditions of deficiency in cognitive functions even if they are manifest in the repertoire of the individual do not preclude the possibilities of prevention of conditions from fully developing, or establishing a new and more functional cognitive repertoire. The theory of structural cognitive modifiability (SCM) provides the basis for guiding our actions in this area, for both assessment (detection) and intervention (the mediation of change). This is addressed in great detail in the remainder of this chapter.

Therefore, early detection, rather than mobilizing the efforts to prevent the onset of the total picture which has been indicated

by the early signs, may create the tendency to become passive and accept the condition as such. This is true in the educational history of many children referred to as "mentally retarded" on diverse levels. If the condition is considered immutable or fixed then the natural reaction is that of passive acceptance. Such children, raised with such conceptions and expectations, may be given types of treatments which instead of developing higher levels of functioning stimulating them further perpetuate the status quo of their experience. The consequence is to address levels at which they presently function and are presumably able to respond.

This results in creating conditions which make the individual become what he or she has been predicted to be the prophesy fulfills itself ! We do all that is needed to materialize that which has been even minimally detected. We place the child in homogeneous situation where there will be no opportunity to learn anything else, to model higher forms of behavior, and which do not present stimuli which are considered to be beyond the level of manifest responses. This is true for a variety of conditions, and leads to the emergence of two different difficulties: (1) that a detected signs is overextended and considered as a pervasive phenomena, and (2) that a regimen of treatment is provided, and conditions, perspectives, and prognoses are produced which are meant to materialize the prophesy which was offered by the early detection.

Children with Down's syndrome, Fragile X, and increasingly, the child who presents with a range of autistic spectrum behaviors have become the victims of this early detection phenomenon. The danger is in the overgeneralization of the signs, and the conclusion that once the sign is detected nothing (or very little) can be done to modify the course of life, other than some minimal alleviation of the symptoms. In this scenario, the basic conditions responsive for its presence are not addressed. The search for signs, in order to detect them, does not lead to strategies of change or prevention. It may, as in the case of "autistic" children, lead to an exacerbation of the symptoms, which may have the paradoxical effect of transforming transient, simple, or isolated behavior into a pervasive phenomena. As a simple example: the child who does not make eye contact or respond to certain auditory phenomena is all too often assessed as having a pervasive dysfunction. Then, in this situation, one neglects to explore alternative explanations. There might, for example, be some sensorial deficiencies of the child that affect responses to the environment, perhaps to the mother's voice, or other phenomena they may be responsible for lack of orienting response to the voice or eyes of the mother. Or other reasons to be explored, and responded to children who do not speak because of hearing loss, or do not respond because of heightened thresholds for attention to stimuli. Given the expectations, nothing is done to try and establish eye contact by introducing adaptive methods and active efforts. The diagnosis of PDD is an all too frequent example of the tendency to turn single, insufficiently explored signs into indications of a pervasive disorder.

Under what conditions can early detection become a source of blessing? This will be the case if we do not deny the existence of the signs, but we deny the interpretation given to them leading to a "passive acceptant" approach elicited by the signs. We need to be aware of and responsive to delayed development due to pre-, para-, or postnatal conditions, or that the children certain other medical, developmental, chromosomal, or genetic conditions. These are valuable to know, to carefully detect and consider, if they are not viewed as leading to a condition of immutability. (Later in this chapter we address the concept of "distal" and "proximal" determinants of the mediation of cognitive development). If the signs become reasons for mobilizing certain preventive conditions, increasing and amplifying types of interventions, which we define as mediated learning experience (MLE), then early detection becomes a source of blessing.

Eliminating the Dangers and Ensuring the Benefits of Early Detection

What are the conditions that turn risks into positive potentials? What must be created to achieve this position? For the remainder of this chapter, we present the theory of structural cognitive modifiability (SCM) and application of mediated learning experience (MLE) as ways to create the conditions. As we understand the theory and concepts, and learn to translate them into applications, we move from passive acceptance to active modification.

What are the foundations for this transformation? First, one substitute a belief in the immutability of the conditions produced by genetic, chromosomal, hereditary, or acquired disability with a belief in modifiability. This does not deny the existence of certain biophysical determinants of behavior. But we believe that these conditions can become meaningfully affected by modes of interaction with the environment, through the provisions of MLE. The theory of structural cognitive modifiability (SCM), upon which the pivotal concept and activity of MLE is based, provides an optimistic model for the adequate use of open approaches to changing the human organism, and maximizes the positive meaning of early detection. Moreover, the theory of SCM now receives strong support from the brain sciences, the demonstrate that the neurophysical system can indeed be significantly affected and structurally changed by imposing on the organism processes of learning and meaningful behavioral experience.

Structural Cognitive Modifiability (SCM) as a Belief System: Why do we refer to our theory of SCM as a belief system? It is, of course, much more, but we start here. The human mediator responds to very strongly experienced and felt needs. We focus on the individual in our care, the target of our intervention. We want to see that individual develop, reach out to higher levels of functioning, obtain a higher quality of life. This need creates a belief-if we want something to happen we will have a need for it; if we believe it is possible, we will mobilize our energy to make it happen. Once the belief system becomes generated success- even when resistance is encountered our repertoire of intervention is strengthened. We will not stop at the first experience of resistance, we will find alternative ways to succeed. The need alone is not enough we will need skills, resources, and other qualities to materialize the need to change, to learn how to act effectively on our beliefs. But the belief system is a condition to start.

Structural Changes in the Organism: Modifiability is usually defined as creating certain changes in the behavioral repertoire of which organism, such as an increase or decrease in the quantity, quality, or intensity of certain behaviors, or the adding through learning of behaviors to the existent repertoire. However, when we define we modifiability as reflected in structural changes, we consider the individual being affected by cognitive processes which generate new structures which enable further, and differentiated, learning. Put in simpler terms: when the individual is modified by learning processes, this creates structural changes which provide a way to "learn how to learn" and to modify oneself through the learning process. Modifiability is not just the adding of skills of information, but the building of tools for further learning. In this sense, the concept as viewed by Piagetian concepts of structure, involve three characteristics:

(1) A change in cognitive structure implies that if the child acquires cognitive structures, each time a certain part of behavior or skills are changed, the total to which the changed part relates will also be changed. Thus the change that is produced will not be limited to what the individual has just learned. Once something is mastered in a structural way, the whole to which the part belongs will also become changed.
(2) Structural changes are marked by transformability, in the rhythm, rapidity, amplitude, and other characteristics of the mental etc. manifestations. A change has occurred on one area. It will affect more and more general areas, and will not be restricted to one particular category or one particular whole. It will change in the nature and efficiency of the elements that are acquired. However, the most important characteristic of the structural change is in the processes necessary to induce the transformations produced in the individual in the nature of the intervention that produces the them.
(3) When the individual has been modified as a result of the intervention a process of "self perpetuation" is generated, whereby the individual continues to modify him or herself and thus propelled to elaborate the acquired changes into the future. This is well illustrated in the various research studies on the Feuerstein Instrumental Enrichment program that show divergent affects gains that continue well after the experimental condition has been terminated. Thus SCM generates new and previously inexistent structures within, but no limited to, those concepts which have been modified through external intervention.

The Role of Cognition in the Production of Structural Change:

Cognition is the key element in our theory and practice. Our "working" definition includes two levels: the cognitive level addresses the structure of thinking, the what, where, with whom, with what affect: the affective level addresses the emotional / energetic dimension: why, what for, what will its meaning for me be? These two dimensions represent the important integrated aspects of behavior. Piaget described cognition and affect as two sides of the same coin. We add to the Piagetian metaphor the notion that the coin is transparent one cannot do something without being animated by an objective determent, that the "what" and the "what for" are intimately connected, even in the most elementary behavior. These conditions enable the learner to articulate emotional responses, organize perceptions, and bring a wide variety of experience into cognitive structure. In this way, cognition enable the establishment of relationships between perceived experiences, as well as the possibility of generating new information from existent sources, and brings in the affective- motivational dimensions.

For the child with special needs, cognitive processes are critical elements in helping them to use the encounters they have with stimuli to enrich their repertoire of thinking modes of interaction with stimuli, bringing stimuli together and grouping them, changing them, etc. However, we also intervene in such a way that cognitive processing will also meaningfully affect, and be affected by, the affective-energetic elements. And cognitive processes structure behaviour so that its purpose, influenced by the affective emotional element, will be efficient, adequate, and able to reach out to the goals established (or internalized) for the learner.

From our point of view, cognitive processes are of vital importance, in particular for children with special needs. They endow and equip them to generate new emotional elements, more articulate needs and goals, and enable them to generate new behaviors of a purposeful, self-initiated, and meaningful nature. And consistent with the overall theme of this chapter, these processes are powerful factors in overcoming or significantly ameliorating many of the effects of specially disabling conditions. The promise of SCM thus creates an option that exists for each individual to increase his / her cognitive processes, to articulate them and enrich them, and create new structures that will be mobilized to master new tasks and new areas of functioning on the one hand, and on the other enriching the individual's repertoire of energetic determinants of behavior by articulating the emotional, affective, and motivational dimensions of experience.

Overcoming Barriers to Change

Structural cognitive changes is an potion available to each individual irrespective of three barriers usually considered as limiting the propensity to develop and increase one's capacity: etiology, the critical period, and the severity of the condition.

Etiology: The etiological condition of the individual parents various levels of difficulty and resistance to change. With organicity or chromosomal conditions, or the biological determinants of certain behaviors, such as autism and the "autistic spectrum" disorders, one asks what can be done. However, as we have dealt with large numbers of children, presenting these and a wider spectrum of cultural difference and social disadvantage, we have been able to show that they are able to become modified, and they have gone much beyond their manifest levels of functioning, without being inevitably or predictably limited by the causes of their condition.

Furthermore, as we have examined these many children, the questions raised are those of: "Will these children be able to function in a normal environment, in normal schools?" "Are they doomed to go on to special education, and to low, menial types of activities for the remainder of their lives?" Consider the child with Down's syndrome. When we started, there was great resistance among the childcare professionals toward telling the parents about the potentiality of these children. It was said, "Be careful, Feuerstein is going to impose on your children things that they are not able to do!" This leads to a variety of rejecting and alienation responses on the part of one or both parents, extending in some cases to leaving the child in the

hospital, completely abandoning it. But today, as the successes and achievements of children with Down's syndrome have occurred, we are bale to bring the parent who may have been shocked by the early detection of their child to an understand that much can be done to further the development of their child. And this creates in them a willingness and energy to undertake positive actions. A curious, and unexplained observation we have made in recent years is the seeming change in the children with Down's syndrome that we are seeing. In our early intervention efforts, we have been astonished by what appears to us a lessening in the amount of physical stigmata and higher level of functioning, even at very early ages. However, we admit that we cannot explain our observation.

We have shown that individuals with Down's syndrome, and other genetic and developmental disorders, are highly modifiable. There is no longer any reason to consider the chromosomal barrier as immutable. After several decades of work, we have such children completing high school, participating in regular education classrooms, writing poetry, painting, performing on the stage, and accepted in the Israeli Army as non combatant volunteers, earning awards. One of our young people is an artist who has had his works exhibited in the Israel Museum, and has had three of his paintings turned into stamps by the government postal service.

An interesting and important issue to this point occurred when we proposed glosectomia (a partial reduction of the tongue) and other aspects of plastic surgery for Down's syndrome children. We were attacked by some: "What for? Why do they have to speak better? What will they have to say fi they speak better?" And yet, when such surgery is performed, and the child no longer has a protruding tongue, stops drooling, can speak clearly, breathe clearly, eat more comfortably, and see him or herself as physically altered, the changes in functioning and self perception clearly vindicate the value and meaningfulness of this intervention. This issue and further descriptions of such cases, are elaborated in Don't Accept Me As I Am (Feuerstein and Rand, 1997).

Thus, with regard to the etiological condition, modifiability is a clear and available option, providing both hope and alternative for action. The chromosomes exist, they act and they change, and they create certain conditions that make adjustment and adaptation difficult. But as we were quoted in Le Monde, "For Feuerstein, the chromosomes do not have the last word! (C. Bert). We are able to describe many inspiring cases where our fight against the pessimism and the actual effects of the endogenous and organic conditions justifies our position that human beings are indeed highly modifiable, irrespective of the distal etiologies which have made them they way they are.

The Critical Period: Even if one is very optimistic about the effects of experience on the individual's capacity and propensity to be changed, there is a widely held the belief in the field that there are limits imposed on the organism by certain processes of maturation and development. It is held that many processes have their fixed time and rhythm, and if missed or passed the effects cannot be overcome. And if missed, efforts to intervene past the time when the maturation processes of the brain are supposed to be completed will be ineffective or futile.

Fortunately, the conceptualization has been overturned by the results of the new neurosciences, showing the plasticity of the brain throughout the life of the individual. SCM thus postulates that the critical period for meaningful intervention is the lifespan. We, and many others, have demonstrated that humans are modifiable to the utmost of their age, all along the lifespan. There is no reason to link the course of mental and cognitive development with the concept of critical period. There are many justifications for this position, and ways of understanding the methodological and conceptual errors in the formulation and maintaining of the earlier critical periods position. It is not within the scope of this chapter to elaborate upon them. We emphasize, both from out direct experience and the rapidly growing confirmatory evidence from contemporary brain research, the view of the human being irrespective of age as an open system, accessible to meaningful intervention and resulting in structural modifiability.

Our experience with the case of Alex (which we have described elsewhere in our writings) demonstrates aspects of overcoming the effects of both critical period and etiology barriers:

Alex had convulsive disorders throughout his early lie due to Sturge- Weber syndrome. He had not learned to speak by the age of 9 and one half. His IQ was estimated to be approximately 35. At the 9 he had a left hemispherectomy in order to stop the autoconvulsive behavior and medical treatments that were necessary. Contrary to expectations, he began to speak. And his language reflected more than simple survival communication … an ability to observe and think about is environment. His "testable" IQ was then assessed at 50, following some limited interventions. Yet no one in the professional community working with him felt he could go further. He was not considered to be able to learn to read or write, or do even simple arithmetic and indeed by the age of 16 he had not. His parents were hold by the neurologists who cared for him that his speaking was an unexplained "miracle" and they should not expect further miracles to happen. He had only half a brain, and the half that produces the learning functions was the part excised.

He came to us five and a half years after his surgery. When we examined him using the LPAD we saw types of behaviors that were indicative of meaningful changes in those areas in which he was said to be unable to show any achievement. He presented us with the opportunity to work with (and study) important questions emanating from our theory and practice: among them Does one accept the condition set by the brain, or does one impose on the brain conditions of mediational intervention? Will the mediational intervention ? Will the mediational intervention be able to overcome both the organic etiology and the critical period with its limitations?

Alex was with us close to three years. In that time, with intensive mediation and structural intervention, he learned to read, write, do mathematical problems, including word problems, and develop mental operations (e.g., solve problems of analogical relationships, use seriation, logical multiplication, and other higher mental processes). He responded to the mediation in these cognitive and academic skill areas, and in the development of social skills. Following his experience with us, he returned to his home environment, enrolled an a special college program and continues to learn and move toward meaningful employment. Subsequent re-evaulation of his cognitive functioning at periods of one and two years following our treatment shows that not only is he maintaining his levels of functioning but he is extending them.

Alex's case offers another important insight on the issue of the tendency to adhere to the critical period concept, almost in spite of evidence to the contrary. Throughout the experience, the parents were told by presumably caring and certainly reputable scientists not to expect much of their child, and even after the first significant gains were demonstrated, continued to deny or devalue the meaning of the changes. At first regarding his verbal language they were told that " at most he would be able to navigate a supermarket and make decisions about what kind of breakfast cereal he wanted to eat." Later, in various scientific publications, with specific reference to his case, they have questioned the meaning, significance durability of the kinds of achievements he experienced, and continues years later- to demonstrate. The lead neurologist studying his case was quoted as saying: "The moment he leaves the Feuerstein program he will forget all that he has learned." However, the sustaining nature of Alex's modifiability brings ample evidence of such processes despite the barriers of etiology, and despite the critical period at which speaking and reading / writing functions started. This raises the important question regarding the specific ingredients in our treatment which make this difference, compared with other earlier interventions.

Severity of Condition: The third barrier is the severity of condition. If you have a multiply handicapped individual you may well feel hopeless about the prospects of meaningful improvement in the quality of life for that individual. Even here, such barriers cab be overcome.

The case of Ravital will convey this condition. Here, her real name is being used because her mother insists that her experience be public example of modifiability.

Ravital was brought to us by her mother. She had a very peculiar face- a condition of ornithocephaly (literally a "birklike" facial structure) with a small chin, long nose, and bulging eyes. She was totally aphonic, unable to bring out any voice, emitting only a high pitched shrieking sound. She sat turned toward the wall, not responding except to make twisting motions with the fingers of her right hand in an "autistic-like" manner. It appeared as self-stimulating behavior. We gave her a piece of plasticine and made her roll it. Ads long as our hand was on hers she would stop.

Then we made a mistake! We spoke to the mother very openly about our disbelief that we could be of any help of Ravial. The mother began to cry and said, "Well, at least teach me how to help her! I will do it! I will not accept that my child stays as a profoundly retarded imbecile idiot (She named it all) and I am happy saying this in front of her!"

We saw the mother several times a year, teaching her, giving her new instruments and orientations to help the child, cues as to what to do with her. A little more than three years later, the mother returned with Ravital and told us that she was reading. We though "wishful thinking from an well intentioned mother." The mother took out a plate with magnetic letters and Ravital began constructing words, with her exopthalmic bulging eyes going around and around, very slowly until she found the letters she wanted. It took her a lot of time. She was also able to identify sentences read to her and she made some calculations. At this point we felt very badly… because of the massive difficulties the child presented, we had reduced our expectations and restricted our interactions, which might have acellerated her development even more.

From that point on, we engaged in a massive effort to help her we put her on the computer, she learned to write on the computer even though her visual focusing problems made it difficult and slow. In the course of time she wrote a beautiful autobiography, and showed herself to be a very insightful, poetic, and highly motivated and intelligent observer of the world around her.

At one point we wondered how much of her responding (her mother had developed a form of "assistive communication," guiding her hand toward the letters and words she wanted to construct or respond to) was dependent upon the help of her mother rather than being truly spontaneous, and began encouraging some distancing between mother and child: "You are such a clever person, why do you need your mother's assistance?" She wrote us a letter on her computer: "Dear Professor Feuerstein, if you dear professor, very honorable professor, would have been like me, told by everybody that you would be an idiot, and you would not be able to this, or that; and the only one who believed in you was your mother, you too, very honorable Professor Feuerstein, would not give up on your mother!"

For us, this illustrated the real meaning of what is called need, which powerfully overcomes the severity of the condition. For Ravital, the need of her mother, against all science and the "realities," generated a belief that this child could be transformed. And she found ways to change what all of us, in our wisdom, deemed as unchangeable.

The child with various manifestations of "autism" is also an important consideration with regard to the severity of condition. There is an epidemic today in the number of children with various signs and behaviors being diagnosed as autistic, from very early ages (as young as two months). And it is estimated that as much as 75% of those so labeled are considered as mentally retarded to various degrees. Here the severity of condition intersects with the manifest levels of functioning, and leads to our question: "To what extent should we consider this population as retarded and unmodifiable?" Our answer is thus: yes they are dysfunctional, yes they have low levels of performance and development, but these should not be considered end conditions, as conditions that cannot be modified. Do we give up too early because of what we observe in the manifest level of functioning? Or should we consider the dysfunction as a "state" in which the individual organism finds itself at a given point in its existence, and still has the option to become modified?

The barriers exist, and there is no question that they impose a reality on parents, educators, and other caregivers. However,

these barriers can be overcome, and the question is "What are the differential modes of intervention needed to overcome these diverse barriers?"

Defining Intelligence and Other Modal Functions as States Rather Than Traits

The movement toward implementing cognitive modifiability requires an important re-definition (from the standard, traditional view) of intelligence. We speak of the propensity to change, and define intelligence as the propensity of the individual to modify itself in order to adapt to changes in the conditions of the stimuli and its particular needs. We thus conceive of intelligence not as a trait, which has a fixed nature, appearing in the same way over time, stable and immutable. We hold that intelligence is a state. The state of autism certainly exists. Such an individual experiences a state of isolation, cut off from social contact, inaccessible to types of mediational interactions offered by the environment. But a state is a dynamic condition that modifies itself and can be modified. It is transient. If nothing happens it may stay and even appear permanent, over time becoming resistant to change. However, if a condition exists which affects the state, such as a particular event or intervention, the state will change.

The case of Shoskila is an excellent illustration of functioning that might be considered a real trait of extreme behavioral dysfunction. The fact is that we were able to show a dramatic change in development from what is usually viewed as an immutable condition, and redefine it as a state of functioning, modified by intensive and extended mediational intervention.

A family brought us their two month old twin girls. One appeared normal, reacting beautifully to the mother's attempt to address her, warmly and responsively. The other, Shoshkila, did not react in any adequate ways to the mother's attempts to orient her, interact with her, verbally or throught touch, gesture etc. Instead, she showed a strong interest in moving things, waving a small piece of paper ih her hand and watching it, holding a thread between her thumb and forefinger and waving it back and forth (incidently, showing early motor proficiency for her age) in front of her eyes, in ways that showed a total preoccupation. It was clear that her behavior was typical of the autistic spectrum of responding, as defined by Kanner. Because of the early onset, it was (in the professional field) to be considered as a strong trait and a pervasive condition, and unlikely to be socially or environmentally determined.

As we attempted to involve the mother, it became clear after a number of attempts to work with her and the child that she could not cope or respond adequately to the needs and responses of Shoshkila. She stated openly that she could not deal with Shoshkila because of her lack of responding and the severity of her behaviors. When we concluded that the mother could not be mobilize to meet the needs of this child, we decided to bring into the treatment of Shoshkila the grandmother. This woman was very simple elderly person warm, naturally nurturing and outgoing, who obviously loved Shoshkila, and who took her to her home and raised her, with frequent visits from and ongoing contact with the birth mother. The grandmother drew her physically close, slept with her in her bed, worked with her, talked to her, intensified her relationship with her. Furthermore, our university students, studying mediated learning experience, were assigned to work with her and write up their experiences, and this occurred over several years.

Shoshkila went to school with her twin sister, had a meaningful delay in aspects of her functioning, but got assistance so she could be in the same class with her sister, and she benefited from this throughout her placement in school. Thus, her academic experience was normalized, and her family was never distrupted by her condition or needs. The primary caretaker was a highly natural mediator did a great deal on her own, and followed the various assistances that were offered throughout the years Soshkila was transformed from a highly isolated and low functioning child to someone who completed 13 years of studies, became a well accepted member of her age group, took advanced training to secure a position as an assistant kindergarten teacher, and found a person to marry. At this point in her life, the autistoform behaviors that were so strong at the beginning, and present in milder forms as she grew and developed, have totally disappeared. Now she had her husband are trying to

become parents.

What has happened here is the kind of change which confirms that such conditions should be considered state rather than a trait. The way by which Shoshkila has become integrated into society, and her striving to become a parent, points to the development of a repertoire of emotional and affective conditions which shows her propensity to be modified away from very serious early dysfunctions (and potential diagnoses) and flexibly adaptive for her future.

One of the most powerful forces that produce this kind of modifiability is that of mediated learning experiences (MLE), to which we now turn,

The Application of Mediated Learning Experience (MLE)

MLE is both the affirmation of the modifiability of the human being, and a description of the ways by which the modifiability of the human being can be increased, materialized, irrespective of the biological condition and previous experiences. These factors will affect functioning, but they are not the end point, and do not preclude the propensity to be changed. As we encounter the human being in this way, in contact with stimuli and in confrontation with the individual's need system, there are two modalities of interaction.

The individual is modified by direct experience with the world of objects and events. The human being is strongly affected by direct experience to stimuli. In the animal world very little use is made of direct exposure, beyond meeting an immediate need, which once satisfied is not responded to again until the particular need is experienced. There are two modalities of learning direct exposure to stimuli and mediated learning experience. Both are important source of impact on human learning. Under conditions of direct exposure to stimuli, the human learning. Under conditions of direct exposure to stimuli, the human is affected in significant ways. However, the great amount of necessary change and adaptation that is required of human learning depends upon the provision of MLE as a catalyst which turns direct exposure into what it should be, as we describe below.

We learn from the effects of what we observe, what we have seen, and what we have done in a direct way. The direct learning experience is indicated by the "S" (stimuli, experience) and the "R" (responses, behaviors) in the behaviorist conception of the learning process. However, human development requires more. Piaget introduced the "O" into the equation. The organism is affected by what it perceives, what it engages in, in its interactions with what is experienced and the way it is experienced. The organism thus establishes structures (Piaget called them "schemata"), which are heavily determined by the characteristics of the organism the state of development, previous experiences, the nature of perceptual processes, and existing schemata. Thus, according to Piaget, the organism becomes sensitive to certain things according to the maturation of the brain. MLE, according to the theory of SCM, creates sensitivities, even if the brain has not matured. We now can describe (and be supported by the brain sciences) the ways in which MLE can help the brain mature. Accordingly, we no longer have to wait until the organism is ready to perceive, interact, and learn form experience. We can provide the experience (through the processes of MLE), and influence the stages of human development, thereby altering or circumventing the traditionally identified and determined stages (as postulated by Piaget and others).

Where and why does MLE enter in the picture? We view direct exposure to stimuli as the most important determinant for learning and development. Yet, there are many individuals who are exposed to stimulation and are not able to benefit from it. There are great differences, for a variety of reasons, in the capacity of individuals to benefit from exposure to stimuli. Some people are constantly exposed and they are not modified each time is as the first time, with no traces left behind. Our question here must be why are certain children and adults not affected by repeated and intensive exposure to stimuli, events, and experience? We consider this due to the lack of exposure to MLE. This is the second modality of interaction between the organism and the environment. It may have not been present at important points in the child's development. It may have been present but not of sufficient focus, intensity, persistence or relevance to respond to the needs of the specific learner. MLE occurs when a human organism, a mediator, interposes him or herself between the "S" and the "O" and between the "O" and the "R". The mediator intensifies, filters, chooses, schedules the stimuli and events, both at the level of exposure (input: "S")

and at the level of responding (output: "R"). The mediator creates conditions of awareness, makes the individual use modalities of search, perception, particular types of instruments and tasks, look for relationships in what has been responded to, creating a plasticity and flexibility which enables modifiability, and enables the learner to benefit from further direct exposure to stimuli. In this way, the mediator, and MLE, has a very crucial role in the development of the flexibility of the human being.

MLE requires the interaction of an animated and intentioned adult, who has a particular interest in making the child aware of certain stimuli being received, who which exposure is experienced. The mediator will affect the child's consciousness of the observed experience, and then create an explicit awareness about it of the relationship of what has is seen, what has been seen, what may be anticipated at a later point, of looking forward and looking for causal relationships, of looking for conditions by which certain changes in stimuli can be produced and so on into many possible variations. The mediator's imposition shapes the types of responses that will be the most adaptive, purposeful, and in this way create a king of loop between the perceived and the response.

MLE is typically a human phenomenon, although research with primates, such as that of Peterson who taught Koko (a gorilla) and Fouts who taught Washoe and her extended family (chimpanzees) American Sign Language helps us to analyze the effects of interspecies mediational interactions. Patterson has written that her interaction with Koko has the quality of mediation as described by our parameters of MLE. The teaching and learning of sign language, and the observations of their use of the language in their communication and social interactions expands the parameters of our understanding of not only MLE but also the role of languages structures to facilitate thinking.

Mediated Learning Experience: Criteria and Categories of Interaction:

What is the nature of the MLE interaction? What are the critical qualities that transform an interaction into MLE? And most importantly, what is the relationship of this interaction to the phenomena of modifiability of the human being, turning him / her into an open system for change ?

We have identified 12 parameters of MLE. These serve as criteria for orienting the mediator to the activity necessary to offer effective MLE. (See Appendix for a full listing of them) They have been well described in a number of places (cf. Feuerstein and Feuerstein, 1991; Feuerstien, Falik, and Rand 2002). We describe them in two general categories: those that create the core conditions for MLE (intentionality / reciprocity, transcendence, the mediation of meaning), which represent the sine quo non of mediation; and those that are situational and specific to the particular experience of the learner (mediation of a feeling of competence, regulation and control of behaviour, sharing behavior goal planning, challenge, awareness of the capacity to change, and the like). We have also indentified 50 categories of mediated situations and interactions, that become the focus of specific interactions that the mediator engages into facilitate the experience of MLE. Among them are such interactions a mediated focusing, mediation of positive anticipation, mediated repetition, mediated identification and description in verbal and non-verbal modalities, mediation of problem solving strategies, and like. For each of these, the mediator can construct and implement activities that mediated for the learner a cognitive and behavioral experience which contributes to structural modifiability.

Parameters of MLE: In this section we will describe some of the parameters of MLE to give the reader a flavor of the nature of the interactions. A full description of each parameter is available elsewhere (see above).

One of the first elements is that the mediator is animated by an intention, not just to offer the child an opportunity to see or interact with something, but with the intention to mediate to the child that which is more than and beyond the immediate reason for the interaction. We say to the child, "I want you to see it here" (mediated focusing). The mediator brings in time and space, "I want you to see it after, and not before." "I want you to consider it carefully, and take your time to see it well" (focusing, regulation and control of behavior). "I want you to know why I am showing it to you, why it is important for you to see it" (mediation of meaning, intentionality). The mediation has an intention, and it is important that the mediate recognize the intention, and respond not just to the particular stimuli but also to the qualities of the interaction with the mediator (reciprocity).

For the child within the autistic spectrum, the qualities of interaction are particularly important: to recognize in the

mediator and in the self a set of reasons and needs that can be responded to. "Why do I cry? Why do I scream? Why am I happy? Why do I smile at your now?" Intentionality and reciprocity are thus among the most important characteristics of MLE. This gives the interaction special qualities, well beyond direct exposure types of interactions. In direct exposure, stimuli come and go, outside the control or prediction of the recipient. In mediated interaction, the mediator makes sure that the child will receive the stimuli, will recognize its importance, and control contact as an important factor in further development or responding.

The mediator must shape stimuli so that they will be able to penetrate the system, despite the barriers. Mediators find ingenious ways of changing a child's functioning by adapting types of interactions. If one has the intention to have the child see something, one does not just put it in front of the child. You take the thing, repeatedly point to it, you change attributes of it to direct attention (the color, the orientation, etc.) you amplify it, you put is in a central place in the child's perceptual field- you do not rely on the chance that it might or might not be perceived. This is necessary because stimuli experienced through direct exposure has a "probabilistic" nature they may or may not appear, their affect on behavior does not extend beyond their immediate stimulus properties.

Intentionality, therefore, changes the three "partners" in the interaction the mediator, the mediatee, and the stimuli (task). If you want the child to see something, you modify it in the way we have described above (a transformation of the stimuli). If you want the child to see something, you raise the child's level of alertness, awareness, need to see (a transformation of the child). And if you wan the child to see, you will do your best to be energetic, enthusiastic, engaging, and persistent (a transformation of the mediator). The mediator's intention is to create a need in the child, amek the child ready to accept what is being pointed out, and help the child to derive benefit. The stimuli itself has no intention and no way of inherently changing the child, except by its direct exposure. The mediator is the agent of change, animated by the quality of intentionality.

A second element of importance to MLEW is that of transcendence, which adds a humanizing influence to the interaction. One does not limit the interaction to a particular immediate goal, in the here and now. One looks for ways to turn the particular experience into a source of changes in a variety of other areas, reaching out to more remote purposes and interactions. Transcendence is the way humans enlarge their need systems, go beyond the immediacy of the stat or the need (as for example, hunger) to respond to new needs transmitted through the larger cultural experience (the desire to eat a particular type of food, at a particular time of the year, at a given place, in a given order, etc. .)

There are two aspects to mediation considered from this perspective: First, mediation makes a world available which we would never experience without the mediation which brings it to our knowledge, which is the content of our experience; and second, mediation creates cognitive processes that enable the elaboration of our experience, the process of mediation. Thus, the individual's system is "penetrated" and transformed by mediation, which is the essence of cultural transmission. What results is a constant extension of the human need system via our mediational experience shared, initiated, and transmitted to others. One transcends the need systems if one loves music, one may give up a true need (like eating) to attend a concert! In this way, the human is oriented to a variety of elements which are not directly accessible except by means of a mediator who takes us beyond the immediacy of our experience and gives us what we need to go beyond?

The criteria of the mediation of meaning represents the energetic factor in MLE. When one works with children, conveying the meaning of what one does, what one is being asked to do, searching for the reasons and values in what one does, one is mobilizing the energy needed to perform. The goal, as with all of the MLE criteria, is to broaden the need system. When the mediator evidences enthusiasm in what is being experienced, helps the child to identify the values in the doing, find the pleasure, gratification, and validation of what is being done, the meaning of the activity is being mediated. This mediation has two ofci: the meaning for the child, and the meaning for the mediator (involving both transcendence and intentionality).

Penetrating the Learner's Need System: If the individual's need system has not been affected and the mediation has not been sufficiently experienced, the modality of shaping the interaction according to the individual's needs will not have taken place. One must find the particular pace, focus, and rhythm from which the organism becomes accessible to the stimuli and becomes changed through the interaction. When it does not occur (as, for example, when the parents say "I told them, I

showed them, I did it with them, but is didn't work," our response is that one did not find the proper way to penetrate the system, and the mediator did not close the loop. The loop is only closed when the stimuli the mediator, and the mediate have interacted in a relevant and meaningful way.

Why Do Some People Not Benefit from MLE? There are two reasons why certain individual may not benefit from or have sufficient exposure to MLE. One reason is that mediation is not offered. The parents do not mediate the child, the culture does not mediate to its members. The reasons are many poverty, social disruption, the stresses of everyday life. But these reasons are not sufficient to prevent the mediational interaction from occurring. For example, many poor people will take a piece of bread from their mouths to give education to their child. When one gives up on his / her children, either because of the difficulties that child parents, or the culture (some cultures are increasingly presenting to parent the message that they should not, or cannot, impose on their children), they deprive their children of the opportunity to develop modifiability, and give up on the possibility of their family and cultural experience being continued into the next generation.

There is another category of reasons for the lack of MLE. There may be various conditions which exist in the individual that make mediation difficult or inefficient. If the child is hyperactive and mediation is offered, the hyperactivity may prevent the mediation from getting through. The short attention span or distractive behaviour may prevent an interaction from occurring, or require a level of energy, persistence, or resource that the mediator either does not have or cannot sustain. In such situations, it is very difficult,. Discouraging, takes a great deal of time. You may not have patience for it, or the child may have serious resistances to being mediated.

The autistic child presents a good paradigm for this kind of lack of MLE. Penetrating the system and bringing the type of stimuli to which you want the child to attend, encouraging the child to see relationships, etc., requires massive and masterful interventions. For the mediation of this and other types of behavioral responding, there are thus two inter-related determinants: the distal determinants of development, which can affect both cognitive and emotional development insofar as they prevent the adequate provision of MLE; and the MLE itself which represents the proximal determinant. The distal effects are such things as heredity, genetic, organic and some familial factors that determine the nature of development. They do not determine their effects unavoidably, they can be overcome.

In the case of the child with behavior in the autistic spectrum, there may be an intermediate factor. This is where the concept of early onset fits: the child may have had accessibility to certain kinds of stimulation, mediation, and interactions. Severe conditions of lack of social relatedness, severe abnormalities of language development, elaborate repetitive behaviors, rigidity, otherwise retarded performance in various sensory or perceptual systems may become intermediate factors, and may create barriers to the attempted MLE. When this happens the individual does not get mediation, and this will result unavoidably in inadequate development, and a reinforcement of the autistic behavioral syndrome, with reduced social and emotional contact with others. With reduced MLE the individual becomes much less modifiable for the simple reason that any attempt to produce a new element (new ways of thinking, perceiving, etc.) will founder against the resistance caused by these new, intermediate barriers.

If, no the other hand, the barriers that create resistance are bypassed, one can go beyond the present functions and initiate meaningful new forms of functioning. MLE thus becomes the proximal determinant of human modifiability people who are exposed to MLE are bale to modify themselves, benefit from encounters with new stimuli, and able to elaborate and use their experience to enlarge their need systems and repertoires of adaptive behaviour. MLE facilitates human development, and the flexibility, plasticity, and hence the modifiability of cognitive processes, as well as the development of a more rich and articulate emotional / affective system. The lack of MLE creates a condition in the individual which we have referred to as "cultural deprivation," inasmuch as the lack of cultural transmission deprives the individual of his/ her culture and results in a limited repertoire of learning a modalities.

Applying MLE to the Special Needs of the Early Detected Child

To reiterate, we believe that all humans have an option to become modified, irrespective of the three barriers to change: etiology, age, and severity of condition. If individuals are indeed modifiable, we must and can meet their needs in an ongoing way, stimulating further development even after the initial experience of change. Any attempt to create conditions

for prediction are seen by us as source of limitation and restriction of the potential for the development of the individual. Can we predict which child will succeed and which will not? Our answer is no! This has led us to the development of new ways of assessing individuals no to measure, as is done in psychometric practices, but to evaluate, observe, elicit activities, and produce samples of change which will help us establish a profile of modifiability and types of mediational intervention needed for the materialization of the focused options.

Assessment: In another paper, The Feurstein Programs for Early Assessment and Intervention: The LPAD-B and the FIE-B, we describe our assessment methodology, the Learning Propensity Assessment Device (LPAD), especially as it has been developed for the younger child. Its major goal is to create samples of change and create a profile of modifiability. We thus avoid the type of prediction that become self fulfilling, by producing such samples of change which show the modalities of intervention which are found to be most efficient in producing the designed changes, and describe condition for the materialization of the propensity to become modified.

For the autistic child, for example, the major goal is to produce samples of normative behavior even though they may be concealed in the context of their abnormal manifest functioning. This is an important concept in the application of assessment from our point of view: a searching for "isles of normality" which provide the footsteps for generalization. By linking these isles and tuning them into larger surfaces of normality, even though still surrounded by dysfunction, each normal behavior detected becomes a "beachhead" for expansion into increased areas of normal functioning. Assessment thus looks for points of departure meant to produce many other "isles" of normality, and provides a basis for reorienting both the diagnosis, and the functional potential of the child so identified.

While the LPAD uses specially designed instruments for assessment, a more general dynamic assessment approach can be implemented in a relatively informal, observational manner. This is particularly appropriate when applied to a wide variety of conditions, including those of the autistic and autistic-spectrum child, the PDD child, and others who are not always sufficiently accessible to more formal assessment. Our approach is both dynamic, and multi-disciplinary, as we will describe below.

Assessment cannot be divorced from intervention in our approach observation and assessment go hand in hand, contribute importantly to one another, and form the basis for systematic intervention.

Modalities of Intervention: We have, in our international center, and by stimulating others using our approaches throughout the world, developed a process of multi-disciplinary clinical intervention, using our applied systems with children presenting a variety of special needs. We use a number of modalities of intervention, linked together through their application of MLE, and the process of assessment and observation described above.

Play Therapy: For children not testable using more formal procedures, but whose modifiability can be observed and facilitated through expressive play. In this modality, observation and intervention are quite inter-related. We see changes in responding, we mediate these changes in responding, we mediate these changes to elaborate and extend them, we further observe interactions with object and people, and thus can extrapolate the potential for changes, while facilitating them. The play process involves a mediated engagement with the child. Changes are elicited using a variety of modes of mediation, and this is often demonstrated to the parent who is invited to observe the therapist's interaction and participate in aspects of the session. We are more interested in the child's process of interaction than what he or she can do. The differences between the manifest level of functioning and the child's potential can be observed in the free and structured play environment that is created. As the parents are involved in the assessment process, we use it to teach them initial mediational responses. We teach them the principles of MLE as they watch us work with their children.

Using this particular modality, with many hundred of children throughout the years (autistic, PDD, autistic spectrum, etc.) we have come to rely much less on aspects of formal diagnosis, and much more on the observational and mediational processes we create. In this way, we are able to determine that only small numbers of children actually conform to the formal diagnoses. More often, children can be viewed as having a variety of developmental and communicational problems which than can be modified, often challenging the validity of the formal diagnoses.

Speech and Language Therapy: This represents an important modality of intervention for many early detected

children. We have developed an emphasis on imitative behavior. Many young children do not initially recognize that sound and words come form their own mouths. A first goal is to make children aware of the sounds in words, and to understand that they emit them. Then the focus is on imitation, obtaining reciprocal responses, maintaining eye contact, and social relatedness in the communication. For many children, especially the autistic and autistic spectrum child, this represents a major change in the mode of their response to he environment. Other issues of auditory processing, discrimination of sound heard, facial and muscular ability to produce sounds, and readiness to attend must be considered in the application of this modality.

One child in particular demonstrated this developing process: after several weeks of trying to get him to imitate (he was extremely dysphasic at the beginning of therapy, having only two sounds), repeating and repeating, he finally took the therapist's hand, placed it first on her mouth, and then on his, and it was possible to se in his eyes that he understood the process of imitation (all illustration of an "isle" of normality in an otherwise pervasive pattern of global dysfunction). The represented a break through, as he learned all of the subsequent sound in a period of three or four more weeks. When he returned a year later, after he had benefited from the intensity of the program of words and he was able to engage the therapist in relevant verbal conversation about them.

The importance of imitation in the acquisition of spoken language reflects the necessity to manipulate verbal stimuli for the child in order that there be a familiarization with the various components of the spoken word. The most important element in this is to make the components distinguishable by varying the amplitude and temporal dimensions of the various syllables, in a way that the child will hear, not composite sounds, but an articulated, differentiated, distinguishable set of sounds. It is by exposing the child to these kinds of variations of speech that addresses the propensity to imitate and learn from this exposure that determines the nature of the imitative processes that will be established. Once learning in this way, there will be an increase in sensitivity to the spoken environment and the verbal stimuli within it. While it is often a natural part of child's developmental interaction within the family and community, for the child with special developmental, communicational disorders, this method becomes a necessary and explicit approach.

Instrumental Enrichment: This is a program (FIE-B) developed for younger children to increase their cognitive modifiability by addressing gaps in their cognitive structure and repertoire of content, and either accelerating, remediating, or preventing them from interfering with subsequent development. The program is a set of activities that presents the child with exposure to content and cognitive processes, structured by the parameters of MLE. As such, the program creates powerful conditions of stimuli, experiences, and events that enables the child to learn, produce strategies to learn, and to apply what is learned to a broader scale and variety of life experiences, including instruments developing social and emotional skills (Identifying Emotions, From Empathy to Action, Thinking to Learn to Avoid Violence) especially relevant for children with communicational difficulties (descriptions of these instruments are available in the companion paper alluded to above).

Shaping Modifying Environments: The goal of this modality of intervention is to turn the environment into a powerful of the individual. It is not enough to assess the child, show the potential for modifiability, and even offer a program to affect the changes that are identified. The environment must e conducive to sustaining or acting on that modifiability. It must provide the tools, structures, and readiness to be responsive to the adaptive potential so identified and described. It is vital that the individual who has been modified live in an environment which has the qualities that sustain and nurture the desired changes. Exposure to a heterogeneous social environment, properly planned and properly organized will be an important condition to help the development of the child. A child placed in a low functioning homogeneous environment will not be helped by the placement, neither in expanding the repertoire of behavior nor in the expectations developed for performance. If the child is confronted by a variety of conditions that will impose types of changes that are possible, development will be sustained and elaborated. There are a number of strategies to make this possible, among them the preparing of the child to function in the diverse environment, the provision of "shadow" support, and the working with personnel in the setting to accept, require and even impose the conditions which facilitate change, and in this way create a broadening of the awareness of the possibilities for administrators and social policy decision-makers.

The Case of Elchanan: An Application and Summary

When our grandchild Elchana was born (he is 16 years old at the time of this writing) with Down's syndrome we knew that we were confronted with a number of significant barriers. He was very hypotonic and slow. He barely engages in eye contact, and manifested a number of other conditions which represented developmental risk factors.

We started to provide MLE from the first weeks in his life. The whole peribucal area was extremel wealk and hypotonic, and we knew that this could cause great difficulties in later development the protruding of the tongue and lack of capacity to mobilize his lips. So we started out by making Elchanan imitate, but not just as a chance encounter with certain models of behavior. We would hold his head close to ours, maintaining eye contact, and offer repeated amplifying sound that would cause him to form his lips and imitate with his tongue. The minute he averted his eyes, we would "run after him" by turning our eyes toward his to re-establish eye contact. And he learned, step-by-step, to keep a steady eye contact with those who were holding him. He began to form his mouth and lips in anticipation of our modeling. Many people in his environment did this, and did it continuously. We did not leave anything to chance encounter. We created conditions under which Elchanan was exposed to modified types of stimuli, by creating appropriate degrees of amplitude and repetition.

As mediators, we impose. Our imposition creates the conditions for the child to overcome his difficulties, and then to do things which become possible because of the intensive previous imposition and activation.

As Elchanan has grown, we have continued to mediate him in a variety of other areas, which will best affect him in his academic and social environments. He has been continuously in heterogeneous, normalized environment, usually with children below his chronological age, often with a sibling or other helping mentor.

From time to time we have had to intensively mediate particular dimensions of his functioning, but never by withdrawing him from the regular educational environment. As an example of working with the "isles of normalcy" that we describe earlier, we relate one of such mediational interventions with Elchanan. At a given point in his development, he began to use a very intensive soliloquy he talked to himself, as as he developed a richer repertoire of speech and vocabulary, he tended to repeat it to himself, over and over, in the classroom and at home. Both parents and teachers became quite concerned with the meaning of this " non socialized" form of speech, which did not appear to have communicational goals. We interpreted this soliloquy as a very powerful tool enrich his speech repertoire, to increase and remediate his articulatory system in particular after his tongue was shortened (undergoing a glosectomia). At a later stage his tendency to talk to himself became the object of self-control focus, as we mediated time and place (for appropriateness), and connected the self talk to communicational needs. He repeated what he had heard hundreds of times. As we worked with this behavior, we viewed it as an opportunity to enrich his language, develop his memory, and to build meaningful articulation, learning the relevant intonation that would connect his meaning to the listener. As his parents and teachers understood the particular role of his soliloquy, they encouraged it but also directed and limited it to places where it not disturb others and where it would have communicational value. Thus, the behavior was interpreted as an isle of normalcy, and used to overcome and broaden his potential for appropriate functional behavior. Alchanon came out of this period with a high level of linguistic proficiency vocabulary, articulation, pragmatic focus, very different than the usual individual with Down's syndrome, who barely move their lips and differentiate their tonality.

This has made Elchanan a very proficient reader, has enabled him to develop an extensive and very metaphoric language and cognitive behavior, and is now in a regular 6th grade level classroom (with one of his younger siblings). He is spending a second year in the 6th grade so as to consolidate his academic skills to be able to enter the 7th grade with strong and confident skills. He has become a strong personality. He know what he wants, can articulately convey his needs, and is viewed by hi peers and extended family system as a very philosophical and wise thinker, with relevant and perceptive observations about the world around him. We take comfort in our observation that he has not been at all negatively affected by conforming to our impositions.

A Final Word

MLE is a meaningful way to affect children's conditions, in spite of the distal or intermediate factors present in their functioning. The outcome will be an increase in modifiability the enhancing of the individual's option for becoming involved in positive change. It is necessary to analyze the specific deficiencies that may appear, and consider these deficiencies as the

target for out intervention. We have developed an extensive list of cognitive functions which serve as the focus of potential deficient functioning, and guide us in the mediational shaping of the particular intervention program, so that the individual will be responded to and shaped by the interaction.

The applications we have described not only convey the heart and flavor of our **approach, but illustrate the adaptive and dynamic nature of our work with children form all spectrums of need. We emphasize an awareness that people can be helped, and the need to reject the passive acceptant approach- the position which says " accept them the way that they are, don't attempt to change them, don't attempt to go beyond that which exists." We consider our way as requiring and permitting a real, meaningful, active modification of the child. We know that some children will not make it, we cannot promise for each child since we are speaking about options, and the possibility of materializing the options that can and must be offered to the individual by all possible means. We have to be creative, ingenious, inventive. And most importantly, to believe that it is possible. And finally, not only to preach it, but to do it.**