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Minimal brain dysfunction (MBD) refers to a significant disturbance in several areas of a child's functioning. This condition includes learning disability, lack of motor coordination , auditory and/or visual perceptual disturbances, hyperactivity, and problems in concentration and attention span. Also involved is a heavy overlay of personality and adjustment problems which lead to behavior difficulties. The cause of this condition is obscure, but several theories prevail. Prenatal development, the perinatal process, and postnatal illness are all factors that may be involved. Hereditary factors may account for a large percentage of cases, as well as sensory and cultural deprivation. Help for the braindamaged child involves giving emotional support, understanding weaknesses and strengths, and psychiatric help or family counseling when advisable. Special classes for MBD youngsters focus on building skills and self-concept so that the children can return to the regular classroom as soon as possible. The teacher of the MBD child must be emotionally stable, well organized, extremely creative and resourceful, and capable of understanding and empathy. (JF)

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MBD - AN EDUCATIONAL PUZZLEMENT

As most of you alert and intellectually curious young students are probably not yet aware of, the letters MBD, in educational jargon, stand for Mimimal Brain Dysfunction. These initials should not be confused with LSD, although they both have to do with brain functioning and behavioral changes.

But don't get confused just yet even though I must confess that in approaching this complex problem I tend to experience the typical reaction of the brain-damaged child - a feeling of bewilderment, disorganization and frustration. I also feel that fools ruch in where neurologists, psychiatrists, pediatricians, opthalmologists, etc., fear to tread. The fools in this case happen to be psychologists, especially the school psychologist, to whom falls the difficult and delicate task of interpreting brain damage to parents. Neurologists have, to some extent, rejected working with the minimally brain damaged child because they can find no brain lesion to justify the high fee incurred in a thorough-going neurological examination, not to speak of the traumatic effect it has on some children. Psychiatrists tell us that teachers and parents must offer the child emotional support; opthalmologists prescribe corrective lenses which seldom correct the child's visual perceptual problem; and the pediatricians often tell the mother that she is overanxious and that little Jimmy will eventually outgrow his problem.

What I am trying to say is that it is futile to try to pass the buck to

some outside expert or agency because ultimately the chickens come home to roost. The problems of these children become the problems for the school administrators, teachers, school social workers, guidance counselors and the combined efforts of all of these working together with parents and cooperating community groups.

By now you must be wondering, "What is it, anyway?" Minimal Brain Dysfunction is a convenient designation which we use to refer to a syndrome, or a cluster of symptoms which occur together in which there is a significant disturbance in several areas of the child's functioning, namely, learning disability, lack of motor coordination, auditory and/or visual perceptual disturbances, hyperactivity and problems in concentration and attention span. There may or may not be medically observable anomalies of the brain or nervous system. There is usually a strong overlay of personality and adjustment problems which in turn leads to behavior and management problems for school, home and community. You are probably thinking, "Whoa, slow down a bit; let's take these one at a time." All right.

First, what seems to set these children apart from others in the classroom is mainly the great inconsistency in their achievement levels as well as in their classroom behavior, motivation and performance. The teacher who is accustomed to thinking of children as all of one piece, with behavior that is predictable, (within limits), with a fairly consistent pattern of success and failure in subject areas (give or take a few points) and with ability to concentrate when sufficiently motivated, this teacher

will in very short order be reaching for the panic button when our hypothetical Jimmy gets into her class. As a matter of fact, there is more than an even chance that she will encounter at least one Jimmy in her classroom every year. Some recent statistics estimate that anywhere from 10 to 20% of the student population will have MBD in varying degrees and with varying disabling effects on learning, adjustment, and behavior. These figures go on to tell us that about 70% of the children seen by psychiatrists and at psychiatric clinics may have primary problems of neurological disorganization, which gets us into the subject of nomenclature, or why all these different names and what is the difference between this other impressive term I just used - neurological disorganization and MBD. Very often the differences boil down to personal preference about terms - or how squeamish you are about talking about brain injury. I'll give you just a brief rundown on terms that are used almost synonomously with MBD. Sometimes one term emphasizes one aspect of the syndrome to the exclusion of others and is thus not as comprehensive a term.

Brain-injured child

Hyperkinetic

Perceptually Disable

Child with Chronic Brain Syndrome

Child with specific learning disability

Child with cognitive defects

Aphasic Child

Dyslexic Child

Organic Dysfunction

etc.

W. S. Cruikshank, a noted authority in this field, prefers the term brain-injured to minimally brain damaged because he believes that there is nothing minimal about this problem. My own preference tends toward MBD because as a school psychologist, I do not get to see as many of the seriously damaged children with whom Cruikshank works.

By this time you must have more than a glimmer of insight as to why I have referred to this child as an "educational puzzlement." As an example, I would like to read to you a typical referral or what I call "cry for help" from a teacher of a third grade pupil. I quote: "Kevin seems to find very 'simple' instructions hard to understand. He often says, 'What do you mean?', or 'I don't understand' when asked things that seem obvious. Kevin is an excellent worker, very conscientious and a 'perfectionist'. He does very neat work and always seems pleased when praised on the nice work he does. He enjoys reading and seems to read very well. His ability to figure out words is very good. He's very friendly and polite." She ended by repeating, "His confusion about 'very simple' things is puzzling."

Kevin's scores on group achievement tests indicated that he was at the 25th percentile in Reading and 15th in Arithmetic; nothing to write home about.

Since there are never enough school psychologists to go around, I didn't get around to seeing Kevin until he was in the fourth grade with another teacher. She had this to add: "He certainly is a paradox. He seems to understand chronological sequence very well when we study

history, but seems to be completely confused when I ask him to put the chair in front of the desk." Many of you may be thinking, especially if you have been exposed to psychoanalytic concepts, that Kevin is, no doubt, displacing the hostility which he feels towards his mother on to the teacher.

In my encounter with Kevin, I found factors much more impelling and disturbing that maternal hostility alone would warrant. I encountered a youngster who appeared disgruntled and bewildered and who wrinkled his brow whenever something was asked or said to him as though he was using every body fiber in an effort to comprehend.

He expressed himself poorly, often became confused in word syntax, sentence structure and grammar and language ability was significantly below the level of a ten-year old. My questions to him often had to be repeated and he tended to misinterpret what I had said to him. He was excessively pleased when praised, since he seemed to have no subjective criterion for gauging the appropriateness of his response.

Briefly, test results on the Wechsler Intelligence Scale for Children, (an IQ test administered on an individual basis) were:

Verbal Scale	97
Performance Scale	80
Full Scale	88

Classification - within the dull normal range of intelligence.

As many of you mathematically gifted students might have already observed, there is a 17 point disparity between the Performance score and the Verbal score, which is considerable and significant, especially in view of the fact that the verbal score is well within the normal range, whereas the non-verbal or performance, falls at the lower level of the dull normal range. This is our first indication that there is something amiss and is also a clue to the possibility of organic or brain dysfunction.

The Bender Visual-Motor Gestalt test which evaluates the youngster's ability to perceive and reproduce geometric figures of some complexity resulted in a developmental level of 6 years, 3 months. Kevin was unable to perceive the errors he made. For most of us, a dot is a dot; but for Kevin a dot looked and acted like a circle. He also had difficulty combining parts of the design and the overall pattern often eluded him. His figure drawing, i.e. the drawing of a person, was estimated to be at the level of a child of five-and-a-half. It clearly reflected a boy with an immature self-concept. Exaggerated ears revealed his preoccupation with trying to understand spoken language and his omission of hands is a clue to his feeling of inability to cope with his environment.

Kevin showed mixed laterality, i.e. lack of right or left dominance. He wrote with his right hand, pitched a ball with his left, kicked a ball with his left foot and used his right eye for monocular viewing. He was unable to follow positional directions, i.e. those involving right and left, above and below, etc. He did finger counting and was confused in working out subtraction problems involving more than two columns of figures. Word

attack skills and spelling were at about his grade level. (A test of reading comprehension, however, would probably be considerable lower.)

Projective techniques indicated feelings of inferiority in relation to his peer group and typical feelings of bodily and emotional insecurity. His responses to projective pictures also revealed to me the difficulty he had in correctly perceiving two-dimensional representations of objects. This is characteristic of children with visual perceptual insufficiency. He interpreted a picture of a boy and his violin as a boy looking at a gun.

I have recommended placement for Kevin in a class for the brain damaged which has been renamed Class for Learning Disabilities and/or Behavior Problems. I believed that Kevin could profit from the special techniques used in this special class and from the individualized instruction he could receive in these small classes of from 6 to 10 pupils. (The reaction of the school principal to this was that he didn't think there was anything wrong with the boy, except that he was a bit lazy!)

An IQ score in the 80's is typical of children whom we refer to these special classes. However, many of the children with MBD syndrome test much higher. Children with higher overall ability are usually in a better position to compensate for their specific learning difficulties. The emotional problems often remain and these children are sometimes referred to by educators as the "underachievers."

Next question: How can the teacher spot this child and single him (or her, usually him) out for testing and follow-up: Volumes have already been written on this, but I will try to summarize some of it so that you will

at least get the feel. I have already hinted at some of the difficulties in describing Kevin.

1. Visual perceptual difficulty. I can best explain this by parodying Gertrude Stein and saying that for most of us, a dot is a dot, is a dot. However, for some children a dot is a dash, is a circle, is a comma, and it can be any of these at different times. The same child will have difficulty distinguishing between similar letters such as lower case "b" and "d" and sometimes even confuse these with the letter "l". He will also be likely to reverse the field and read "was" as "saw." Visual perception differs from visual acuity in that acuity measures how the retina receives the stimulus; perception is concerned with what the brain and nervous system do in the way of organizing and interpreting what the eyes "see." Therefore, if Mama takes Jimmy to the opthalmologist and he gets fitted with glasses, this sometimes makes Mama feel that she has done something. It rarely alleviates the youngster's learning difficulties and by some odd coincidence, Jimmy usually forgets to bring his glasses to school.

2. Auditory perceptual difficulty; sometimes called language deficit, aphasia, word deafness, etc. Speech centers of the brain are not receiving, retaining and/or interpreting sound stimuli in a normal fashion. Such a child, even of high intelligence, may have difficulty repeating a short sequence of numbers. Auditory difficulties will also be manifested in delayed speech, articulation problems, naming objects incorrectly, and difficulties in verbal comprehension and expression. Also poor grammatical form and faulty syntax and mispronunciation of common words. Such

children often look very much puzzled and under stress when a question of any degree of complexity is put to them. It is very common for them to look pained and continually ask "What?" in a peevish manner. Reading difficulties are usually present and the phonics approach is invariable the worst method to use with these children.

3. Hyperactivity, Distractibility, Short attention span. These children cannot keep from responding to irrelevant stimuli, e.g. pictures on the wall and other children around them, sounds coming from the hallway, or a bright colored dress the teacher may be wearing. He is also likely to have many involuntary nervous mannerisms, like foot tapping, eye spasm, or he may be a personification of the perpetual motion machine. Medication prescribed by the family physician or pediatrician often helps calm the child and make him more amendable to learning.

In connection with hyperactivity, I should like to introduce an interesting new word to you. If you can understand the process which this word describes then you will be very advanced in your understanding of brain damage, as well as of behavior problems in general. The word is DISINHIBITION and it is composed of two parts: Dis, meaning the reversal of, the opposite of, or simply not. The dictionary defines Inhibition as "any psychical activity imposing restraint upon another activity. In basic English then, the child is unable to stop himself from doing something. He appears to lack the neuromotor control to effect self-discipline and long range behavioral goals. He gives way to irresistible impulses - to strike a child, or perhaps to stroke a child,

and may impulsively blurt out, "You did it all wrong, teacher." Sometimes these children are involved in petty stealing or just "taking things." Pervading guilt feelings, remorse, and a sense of personal worthlessness combine to complicate the emotional picture. Anxiety, too, is present because the child fears the consequences of his uncontrollable behavior.

4. Poor motor coordination. These children are often described by the gym teacher as "clumsy." They appear to fall all over themselves when they walk, many walk with a shuffling gait and toe in. At age 10 many are still unable to catch or pitch a ball smoothly, or to skip or run with well-coordinated movements. Speech fluency is lacking and the normal natural rhythmic pattern of speaking is impaired.

5. Self-concept is damaged. This child is a puzzlement to himself as well as to the adults around him. He knows that he is a disappointment to his parents; nor can he save face on the ball field. Everytime report card time comes he knows that he is not "scoring" at school either. Many of these children refer to themselves as "dumb", "stupid," and "retardate."

6. Social adjustment is poor. These children would give their right arm to have other children like them and seek them out. Because of faulty perception of his physical and social environment, he is a poor judge of the behavior of others. He does not respond to social cues and is not good at imitating peer behavior. He is thus often alienated from his classmates as well as from the neighborhood children who do not understand why he always wants his way or why he will suddenly haul off and hit another kid without good reason. Children generally observe a fairly liberal code

of behavior; however, they usually draw the line at what they consider "oddball." Poor language skills further confounds this child's attempt to communicate effectively with others.

There are several other problems which I will try to quickly summarize: Difficulty in dealing with abstract concepts and symbolic reasoning; expressive motor difficulties, such as learning cursive writing; difficulty in organizing ideas and difficulty in arithmetic computation when too many problems are presented on one page; poor memory for simple words, dates, places; poor space orientation which means that he may feel upset and insecure in a large unstructured area; confusion about right and left, above and below, etc. He often shows mixed dominance. Perseverative tendencies - finds it difficult to switch once he has become "set" in a given activity or thought.

Withdrawal symptoms are frequent among some of these children when they find that they cannot cope with the demands of the classroom or of the peer group. Although the quiet, retiring child is less likely to attract the attention of the teacher, his problem may be as serious as the child who "acts out" his difficulties.

The etiology or cause of this debilitating condition is at best, obscure. It is rarely possible to pinpoint a specific cause with a specific child, but there are some prevailing theories as to general factors which may be operative together or separately.

1. Prenatal causes - chemical or hormonal change during embryonic development, e. g. Rubella (German Measles) during the first three months

of pregnancy can impair brain development of the growing embryo.

2. Perinatal - injury or lack of oxygen during birth process.

3. Post-natal - accident or illness during infancy or childhood. High fever has been known to produce changes in brain wave activity.

4. Genetic and hereditary factors may account for a large percentage of cases. Familiar patterns of MBD have been observed. The preponderance of MBD cases among the male population suggests possible genetic sex linkage.

5. Sensory and cultural deprivation (including extreme dietary deprivation) can impede normal growth and development of the brain and nervous system, especially during critical periods of development.

What help is there for this child?

1. The child must be supported emotionally as well as through special educational procedures. Because of his sense of physical and psychological instability, this child needs constant reassurance and help at home and at school. Consistency in discipline, clear guidelines to follow and a structured, but not rigid environment are basic in managing these children. Influence of the father is also of utmost importance, since he is usually the one who represents strength and authority which help support an insecure child.

The subject of paternal authority brings to mind the plight of the young Parisian father wheeling his infant son's buggy through the Bois de Boulogne. The son was howling for all to hear and wonder, while

the father contented himself with repeating softly, "Control yourself, Bernard; just be calm Bernard." A child psychologist happened to be on the scene and looked on approvingly. He tapped the Parisian on the shoulder. "Admirable. Congratulations, monsier," he said warmly, "for keeping your temper so well. You seem to know instinctively how to handle the little fellow. Gently does it. So he's named Bernard, eh?" "No, monsieur, not at all," corrected the Parisian. "I'm Bernard. He's Andre."

2. Cruikshank and other psychologists working in the field admonish "Teach to the Disability," which means simply understand and utilize the child's weaknesses and strengths. Here is the barest outline of what has been written on the subject:

a. Use of visual motor training techniques. There are packaged programs, one written by Frostig and another by Vallett. Also, the use of puzzles, pegboards, block designs, etc., can help.

b. Sound and language training and the teaching of reading with the child's perceptual difficulties considered and compensated for. Find out what the child can do well so that these can be used as compensatory mechanisms in learning.

c. Recognition of short-attention span and hypermotility, and planning the school day accordingly.

d. Provide for work periods during the day in which there will be a minimum of distraction. Individual booths or cubicles are used for this purpose.

e. Discover the child's comfort level in a subject and gradually increase the difficulty. Do not hesitate to backtrack, if necessary.

f. Use a concrete approach in teaching, as well as a variety of different ways of teaching a concept.

g. Help the child develop his motor coordinative skills. Many of these exercises are outlined in books and manuals, among them Kephart's and also in the Frostig Program.

h. Help him understand his own behavior as an individual as well as in his interaction with the group.

i. Give him the opportunity to experience success which is his own. This is essential to the growth of any child, but especially to the child with a disability.

3. Psychiatric help or family counseling is often advisable. Parents must be helped in adopting the attitude of "What can I do?" in place of the guilt-ridden, "What have I done?" They need help in learning how to manage the child, as well as how to manage their own feelings in dealing with a sometimes exasperating child. We are beginning to regard parent-child relationships now as a feedback system, in which a child who makes inappropriate or insufficient responses may arouse anxiety, hostility and sometimes aggression on the part of the parent, precipitating increased anxiety on the part of the child and desperate efforts to reach a point of stability. A closed, self-perpetuating system or vicious circle is thus set into motion and continues unless therapeutic intervention takes place. We are, at long last, getting away from blaming all childhood problems

on "parental rejection," "over-protection," "Mommism," etc., but are becoming more concerned with dynamic, interacting patterns of behavior or feedback. As a parent, I must admit, that it is a great relief that my children can now shoulder some of the blame for their sometimes uncouth behavior.

Supportive help and counseling for the teacher is recommended as well, so that she or do does not succumb to the inevitable frustrations and strain in working with these children.

After these many words of encouragement, I'm sure many of you will want to find out how to qualify as a teacher of the brain-damaged child. In all seriousness, this branch of teaching is considered one of the most challenging and rewarding. I should add that these special classes are not meant to be dead ends for MBD youngsters, but rather a place for building skills and ego so that the children can return to the regular classroom as soon as possible.

The successful teacher of the brain-damaged child, it is said, should have at least a few of these sterling qualities: She must be an emotionally stable person who can achieve satisfaction with small gains over long periods of time and who is not threatened by having to retreat, and will try new approaches and methods when old ones fail. She must be well organized and be able to function within the limitations of a structured situation, i. e. with a great deal of routine. She must be consistent, yet flexible, in discipline. She must be able to work in a team. Above all,

she must be extremely creative, innovative and resourceful. She must be capable of understanding and empathy in order to fathom the emotional depths of this troubled child and to be able to help him help himself.

Books and articles in this field are being published faster than even the speediest of readers among us can possibly keep up with. I hope that many of you will have some time to dip into at least some of the books and periodicals I have listed. You will probably find them helpful in many teaching situations, but especially so if you have any opportunity to work in special education.

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