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Four papers present major dimensions of minimal brain dysfunction. S.D. Clements lists medical and behavioral guidelines for the diagnostic evaluation of children with this condition, and discusses symptoms and their general course. In considering the impact of neurological disease on families, J.W. Conwell discusses the potentially devastating effect on the person and his family, the emotional impact of an invisible disability, the fear of epilepsy, appearance of normality and increasing difficulty of accepting the condition, the possible disruptions in behavior, and the difficulties in obtaining clear cut diagnoses. D.L. McCarthy describes parent programs in a center where parental involvement is encouraged and parent counseling is provided, and also describes the role of the counselor. J.D. Johnson delineates some educational principles for these children under the topics of diagnosis and evaluation, task analysis, relationship of learning functions, planning, and educational programs and goals. (DF)

A symposium

A NEW PROBLEM AREA FOR SOCIAL WORK

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue • Chicago, Illinois 60612

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MINIMAL BRAIN DYSFUNCTION

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FOREWORD

In recent years educators, psychologists, and physicians have been concerned with children with behavioral and learning problems caused by minimal brain dysfunction. The result has been a developing body of knowledge on assessment and management techniques characterized by a diversity of viewpoints. At a slower rate social workers are becoming more knowledgeable about this neurological condition and its implications for the child and his family, but little has appeared in the social work literature on the subject.

To create further awareness on the part of the social work profession of the emotional factors created by the condition, the National Easter Seal Society for Crippled Children and Adults sponsored a Symposium on "Minimal Brain Dysfunction—A New Problem Area for Social Work" at the Annual Forum of the National Conference on Social Welfare in Dallas, Texas 1967.

This booklet contains the three presentations made at the Forum which trace the development of the concept, diagnostic guidelines, ramifications of the emotional impact, a description of a service program for parents of such neurologically damaged children and the role of the social worker in dealing with both the child, his parents and family.

The fourth paper, "Educational Principles for Children with Learning Disabilities", was not presented at the Symposium. It has been published with these proceedings so that social workers may better understand the educational principles underlying the remediation programs for children with minimal brain dysfunction. This paper was originally presented at the 1964 Annual Convention of the National Easter Seal Society for Crippled Children and Adults. It is reprinted here from the October 1967 issue of *Rehabilitation Literature.*

For more than four decades state and local Easter Seal Societies have provided services to physically handicapped children including those with neural involvements. In more recent years, the National Easter Seal Society has spearheaded important research activities in this field and has a substantial amount of literature available for distribution.

TABLE OF CONTENTS

Three of these papers were presented at the 1967 Annual Forum
National Conference on Social Welfare, Dallas, Texas

MINIMAL BRAIN DYSFUNCTION—*The Problem*

Sam D. Clements, Ph.D.

The title of today's symposium, "Minimal Brain Dysfunction—A New Problem Area for Social Work", indicates that although the concept of minimal brain dysfunction as a diagnostic and treatment entity has been developing for the last several years, the full impact of its many implications has only recently been acknowledged and appreciated by many professionals working in the public and mental health fields. As such, it has produced many new problem areas, not only for social workers, but for all professionals who work with and for children and their parents.

This panel will attempt to delineate some of the problem areas relating to minimal brain dysfunction, and provide some possible solutions.

It seems imperative at the outset to define and describe minimal brain dysfunction as a diagnostic category.

Our clinical concern is for that large group of children and youth who are of apparent good general intelligence, yet who fail to progress in academic skills at the expected rate. Not only do these youngsters experience learning disabilities, but they exhibit behavioral differences which are a source of irritation and bewilderment to parents, teachers, and playmates. Some of these children are relegated to the special education classroom designed and operated for the mentally retarded; others are retained in grade for a year or more in the belief that they will "catch up"; some are tutored incorrectly for months on end with no appreciable gains in skills; most are passed along automatically with their age group through the mechanism of "social promotion", even though it is known that the child cannot compete academically or socially with his peers. These children are called by many names: lazy, slow-learning, immature, emotionally disturbed, under-achievers, etc. Although such terms may describe certain characteristics exhibited by the youngster at a given time, they provide us with very little useful information about him, how he got that way, or, most importantly, what we can do for him.

Identification of the child with minimal brain dysfunction depends upon a precise definition of the term. Following is the working definition from the *Task Force One Document* of the National Project on Minimal Brain Dysfunction in Children. Its purpose was to establish the category, and to make specific the group of children with which the National Project would be concerned.

> The term Minimal Brain Dysfunction refers to children of near average, average, or above average general intelligence with certain learning and/or behavioral disabilities ranging from mild to severe, which are associated with deviations of function of the central nervous system. These deviations may manifest themselves by various combinations of impairment in perception, conceptualization, language, memory, and control of attention, impulse, or motor function . . .
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> These aberrations may arise from genetic variations, biochemical irregularities, perinatal brain insults, or other illnesses or injuries sustained during the years which are critical for the development and maturation of the central nervous system, or from other unknown organic causes . . .

During the school years, a variety of learning disabilities is the most prominent manifestation of this condition . . .

It should be noted that the term "learning disabilities" is the one preferred by educators in discussing and programming for the minimal brain dysfunctioned child. Also, many states now have parent and professional organizations which are dedicated to the advancement of the education and welfare of children with minimal brain dysfunction. These are the Associations for Children with Learning Disabilities.

The tremendous rise in the number of deviating children assigned to the category of minimal brain dysfunctioning as the primary cause of their learning and behavior disorders may, in part, be explained on the basis of one or more of the following factors:

1. The increased refinement in diagnostic techniques and skills. There is greater precision in diagnosis, methods and techniques in the medical, educational, and health-related fields, which were not available a few years ago.

2. An apparent increase in the number of children compromised by neurologic dysfunctions. It is a fact that with improved tools and techniques, physicians are able to save newborns and infants who would have succumbed to trauma, perinatal distress, and disease a few years ago.

3. A growing dissatisfaction and disenchantment on the part of many clinical child workers with the purely psychogenic, environmental, and inter-personal explanations which have traditionally been given to explain any disorganized or poorly understood behavior. This dissatisfaction has become even more apparent with the new trend in community mental health, which is in general opposition to the custom-worn concept of the clinic-centered cure.

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It was, in fact, for these and other reasons, that the National Project came into being. It will produce a series of position papers dealing with learning and behavioral disorders in children based on current knowledge and thinking. The Project was launched on October 1, 1964, under the joint sponsorship of the National Institute of Neurological Diseases and Blindness, the National Institutes of Health; the Neurological and Sensory Diseases Service Program, Division of Chronic Diseases, U.S. Public Health Service; the Easter Seal Research Foundation, the National Easter Seal Society for Crippled Children and Adults, Inc; the U.S. Office of Education.

The Project involves three task forces or working groups, headed by a permanent over-all steering committee:

TASK FORCE ONE—Terminology and identification factors.

TASK FORCE TWO—Services for minimal brain dysfunctioned children and their parents. It is composed of two subcommittees: the

Medical and Other Health Related Services Committee, and the Educational Services Committee.

TASK FORCE THREE—Identification of areas of needed basic and applied research.

Each phase of the Project involves a different multi-disciplinary working committee which is charged with setting forth action guidelines for its particular area of concern.

The Committee for Task Force One has completed its tasks of formulating an agreement on diagnostic terminology and description for this group of children, and proposed guidelines for a comprehensive diagnostic evaluation of deviant children. The *Task Force One Document* was released in late 1966, and is available from the U.S. Government Printing Office.

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You have noted, I am sure, that one of the co-sponsors of the National Project is also a co-sponsor of this program today. I refer to the National Easter Seal Society for Crippled Children and Adults, Inc., which has played a major role in the historical development of the concept of minimal brain dysfunctioning, and perhaps more importantly, has taken the leadership in providing a variety of services to children and parents through the Easter Seal programs around the country. In addition, they have available for parents and professionals, a fine catalog of reading materials covering a variety of subjects concerned with minimal brain dysfunction.

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With regard to identification of the minimal brain dysfunctioned child, the guidelines for a comprehensive diagnostic assessment are given in the *Task Force One Document,* and appear as follows:

GUIDELINES FOR THE DIAGNOSTIC EVALUATION OF DEVIATING CHILDREN(1)

A. Medical Evaluation

1. HISTORIES:
    a. *Medical*—To include pre-, peri-, and postnatal information. Details of all childhood illnesses should be obtained, including age of child at time of illness, symptoms, severity, course, and care (such as physician in attendance, hospitalization).
    b. *Developmental*—To include details of motor, language, adaptive, and personal-social development.
    c. *Family-Social*—To involve parents, child, and others as indicated. The family-social history should include detailed information regarding family constellation, acculturation factors, specific interpersonal family dynamics, emotional stresses, and traumata.
2. PHYSICAL EXAMINATION:
    a. *General*—To evaluate general physical status and to search for systemic disease. The physical examination should be done as part of the current

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(1) Minimal Brain Dysfunction in Children, Terminology and Identification, Phase One of a Three Phase Project. U.S. Department of Health, Education and Welfare; Public Health Service, Washington, D.C.; 1966.

evaluation of the child, and not obtained at a previous time for some other purpose, e.g., routine preschool checkup or in conjunction with a previous illness. Many child study clinics obtain a report on the "physical status" of the child from the family physician or pediatrician as a part of the referral policy. It is not uncommon, however, for the physician simply to fill out the requested form from his records on the child without conducting a current examination.

b. *Neurologic*–To evaluate neurological function and to search for specific disorders of the nervous system. The developmental aspects of neurologic integration assume primary importance for this examination, especially with reference to integrated motor acts as opposed to simple reflexes.

3. SPECIAL EXAMINATIONS:
   a. *Ophthalmologic*–To include visual acuity, fields, and fundi examinations.
   b. *Otologic*—To include audiometric and otoscopic examinations.
4. ROUTINE LABORATORY TESTS:
   a. Serologic.
   b. Urinalysis.
   c. Hematologic.
5. SPECIAL LABORATORY TESTS (Only When Specifically Indicated):
   a. Electroencephalographic–To include wake, sleep, and serial tracings.
   b. Radiologic.
   c. Pneumoencephalographic.
   d. Angiographic.
   e. Biochemical.
   f. Genetic assessment: Chromosome analysis.

B. Behavioral Assessment

1. ACADEMIC HISTORY–To involve child's teachers and principal, with their observations regarding school behavior as well as academic progress and achievement. The child's school records, including samples of schoolwork and test results, should be available to the diagnostic team.
2. PSYCHOLOGICAL EVALUATION–The following items represent the core of the psychological evaluation:
   a. Individual comprehensive assessment of intellectual functioning.
   b. Measures of complex visual-motor-perceptual functioning.
   c. Behavioral observations in a variety of settings.
   d. Additional indices of learning and behavior as indicated.
3. LANGUAGE EVALUATION–Detailed assessment of speech and language behavior. To include audiometric screening; assessment of articulation, voice quality, and rate; and the expressive and receptive aspects of language.
4. EDUCATIONAL EVALUATION–An educational diagnostician should conduct detailed analyses of academic abilities, including achievement assessment for details of levels and methods of skill acquisition; e.g., reading, number concepts, spelling and writing.

We have described and defined the minimal brain dysfunctioned child. We have briefly detailed what is thought to be a comprehensive diagnostic evaluation. Let us now attempt to identify the child as he appears in the clinic setting, with emphasis on some of the findings resulting from the evaluation. The following features, in a variety of combinations, tend to characterize children with minimal brain dysfunctioning.

1. *Average or Above Intellectual Capacity*—This is determined by a comprehensive individual intellectual assessment by a qualified clinician.

2. *Specific Learning Disabilities*—The most commonly affected academic skills are reading, arithmetic, spelling, and/or handwriting. There are concomitant difficulties with abstract concepts such as time and space and in mastering tasks which are dependent upon fine perceptual discrimination and intact integrative processes within the various perceptual systems.

3. *Perceptual Deficits*—These may occur in one or several of the sensory channels, i.e., visual, auditory, kinesthetic, tactile, etc. Printing, writing, and drawing may be poor for age and measured intelligence. Figure-ground and/or whole-part discriminations and relationships may also be affected.

4. *Coordination Deficits*—The child may appear as clumsy or awkward. Motor coordination may involve either fine muscle performance, such as buttoning, tying, cutting, drawing, writing, model building, typing, etc., or motor coordination in activities such as walking, riding a bicycle, swimming, playing, baseball and other such sports.

5. *Abnormal Motor Activity Level*—

a. *Hyperactivity*—Child appears to be in constant motion, flitting from one object or activity to another; or he may display extreme restlessness. Hyperactivity can also manifest as voluble, uninhibited speech, or in disorganized thought processes.

b. *Hypoactivity*—Child described as slow and "day-dreamy", in that he moves, thinks, and speaks at a markedly reduced rate. Often such slow-responding children will have an "aphasoid" quality in their expressive oral language.

6. *Emotional lability*—The child may be considered high-strung, overly sensitive, fluctuating. He may have quick changes of emotional response from high temper to easy manageability. He may be panicked by what would seem to others as a minimally stressful situation. Such mercurial behavioral shifting is most characteristic of the hyperactive child. On the other hand, the hypoactive youngster is most commonly sweet-and-even tempered, cooperative, diligent, and displays a high tolerance for failure and frustration.

7. *Short attention span and/or distractibility*—The child is unable to concentrate on one activity for the length of time appropriate for his age and intelligence. He is drawn to irrelevant stimuli in his environment which interferes with academic and social learning situations. Some children show a tendency to become locked in a simple repetitious motor activity or preoccupation with one verbal topic. This latter characteristic is referred to as "perseveration".

8. *Impulsivity*—This characteristic is again most commonly associated with the hyperactive child. The youngster seems incapable of controlling or inhibiting his impulses to touch or handle objects when in a new or overstimulating environment. He frequently speaks without checking himself. Such impulsivity

easily leads the child into conflict with the demands for conformity as established by family, school, and society. Some of the more involved children may commit striking anti-social acts, to the point of fire-setting, stealing, etc., with only a modicum of provocation. The immediacy of the act prevents the child from foreseeing the consequences of his behavior.

9. *Equivocal or "soft" neurological signs*—The most often noted signs in these youngsters are: transient strabismus; poor hand-eye coordination; mixed laterality; confused laterality; speech impairment or a history of slow speech development or irregularity; developmental discrepancies; and general clumsiness.

Most new diagnostic entities require a combination of tradition and fresh approaches to treatment planning. And, such is the case with minimal brain dysfunction in children.

Proper and individualized educational programming is perhaps the most important element in the child's treatment program. Unfortunately, this is the area which presents the most problems to professional persons working with the family. The diagnostic evaluation will tell us the specific areas of cognitive and perceptual deficits within the child, which in turn form the basis for his reeducational program; but securing the needed educational services can become most difficult. Public school systems are just now beginning pilot programs for children with learning disabilities. Teacher training institutions are just now developing curricula to prepare teachers to work with minimal brain dysfunctioned children. And, naturally, some communities and states are far ahead of others in providing for the educational needs of this large group of exceptional children.

As an incentive to teacher preparation and understanding, the National Easter Seal Society for Crippled Children and Adults, Inc., with the Alpha Gamma Delta International Women's Fraternity, has offered to qualifying training institutions, a special scholarship grant to be used for training teachers who wish to increase their knowledge and skill in teaching the child with minimal brain dysfunction.

Most of these children are referred to clinics and child evaluation centers when they are third-graders. The learning disabilities are so apparent by this time to both teachers and parents, that exploration into the nature of their difficulties is sought. We can only speculate as to what happens to children where public and professional education on this topic is behind the times, and where adequate diagnostic facilities are not available.

Perhaps the saddest and most difficult part of our clinical work involves the youngsters who do not reach us until they have become adolescents. In many cases they have already dropped out of school because of the failure, frustration, and misunderstanding they have endured throughout their academic life.

I wish to avoid the subject of the role of the social worker in working with the minimal brain dysfunctioned child and his parents, because this will vary from agency to agency, and depends upon such factors as the experience, skills, and particular talents of the individual worker.

However, there are areas of information about minimal brain dysfunction with which she must be familiar in order to be of maximum benefit to the child and his parents. Among these are: the behavioral characteristics of this group of children; home management techniques; a thorough knowledge of all community resources which provide various services required for appropriate therapeutic management of such children and their parents; some knowledge about the various medications used for minimal brain dysfunctioned children, and, in particular, techniques for evaluation of the effectiveness of the drug prescribed. In addition, the social worker must be able to elicit a comprehensive pregnancy, perinatal, and developmental history of the child from his parents. She must be able to work therapeutically with the parents regarding the anxiety they manifest because of their exceptional child. She may wish to conduct a therapy group consisting of parents of minimal brain dysfunctioned children. She should also, I feel, be able to work as a consultant to other agencies who are developing service programs for these children and must work as a community leader in securing services which are currently unavailable to the children and their parents.

Environmental manipulation, counseling the parents and child, securing the proper educational program, and the newer medications, are all powerful tools in helping the minimal brain dysfunctioned child reach his potential. Such a child labeled and reacted to as incorrigible, emotionally disturbed, mentally retarded, or lazy, can respond dramatically when these tools are put to proper use. Parents and teachers who are helped to understand the organic nature of the child's difficulties can then be liberated from feelings of guilt and personal failure. The adults who must work with these children can then become more objective and constructive in their interactions with him.

Some of the more irritating symptoms of the minimal brain dysfunctioned child, particularly hyperactivity, short attention span, etc., do tend to smooth out rather spontaneously by the time the child matures into adulthood. Damage to the child's self-concept because of misunderstanding and mismanagement may, however, remain with him forever. Through early diagnosis and the use of the treatment tools described, this damage can be prevented.

Minimal brain dysfunction is a new diagnostic and treatment entity in the public and mental health fields. Because of its newness, we must learn about it. We have an obligation to our patients, our profession, and ourselves to keep abreast of the changes which are constantly taking place in these fields. These new discoveries about the learning and behavior disorders of children have far-reaching implications with regard to patient care and rehabilitation, and we owe it to them to work for and provide the very best which our present knowledge allows.

THE IMPACT OF NEUROLOGICAL DISEASE ON FAMILIES

JOHN W. CONWELL, M.D.

How does one tell parents that their child is brain damaged? How does one convince parents of a handsome, mischievous, and apparently intelligent child that he is different from other children and will have to be given special consideration at home, at school, and in every other phase of life day after day, winter and summer for perhaps 6 to 10 years? There should be no question in anyone's mind of the tremendous emotional impact such pronouncements have on families, and particularly on the parents of children whose problems have been so well described by Dr. Clements. In a relatively short period of time in the private practice of neurology, I have never found an easy way or an entirely convincing way to present to parents the diagnosis and what it means to the present and future. The various ramifications of the emotional impact of such an announcement on parents and families in which a child with minimal brain dysfunction exists is the subject of this paper. how physicians view the problem; how it is presented to families; the various problems arising within the families; the role of the social worker and of the educator in helping in the early recognition, diagnosis, continuing management, and acceptance of the challenge.

There is no problem in the field of neurological practice which has arisen in recent years that has presented so great a challenge as has the proper identification and management of the child with so-called minimal brain dysfunction. During the past 5 years increasing amounts of time are devoted by the neurologist to the evaluation of these children. Approximately one half of the patients being referred in private practice are children with symptoms suggesting this diagnosis.

Neurological disease of any type has the potential capacity of producing rather devastating effects upon not only the individuals involved, but indirectly on all other members of the family. The actual loss of physical capabilities as occurs in severely brain damaged children with such conditions as cerebral palsy are, of course, apparent and well known to all. The inability of a child to use his arms or legs properly following a disease such as poliomyelitis produces both direct and indirect effects upon the child himself in a physical as well as emotional sense. Such a major disability may produce either an aggressive attitude with direct or indirect hostility toward the world, or a withdrawn, introspective retreat from the handicap and from the challenges of the world at large. In either case, there is an excellent potential for developing a serious secondary psychological problem of the classical type. In addition, there are reactions of the rest of the family to a child having such definite physical limitations. Other children within the family often must be asked to assume responsibility for the impaired child, or perform chores and fulfill responsibilities which the handicapped sibling might otherwise assume himself. Such a situation leads naturally to resentment of the handicapped by the normal children of a family, often resulting in considerable interfamily strife and possibly an unhealthy family environment.

The parents of a neurologically handicapped child whose disability is not obvious to the naked eye feel acutely the emotional impact of the condition or disease which led to the handicap. As parents, we tend to project to our children goals and ideals and in many cases strivings for success, position, and status. The parent of a handicapped child may feel cheated by fate or circumstances or perhaps by divine intercession, but at any rate, the acceptance of a child for what he is, rather than what he might have been, presents the greatest hurdle a parent has to overcome. It is not until parents have accepted these facts that they can then proceed with accepting the necessary programs and therapeutic aid that is available and necessary. When the parent is unable to accept the fact that a child is handicapped in any way, automatically the child is excluded from receiving the complete aid and treatment which is available. Acceptance then, becomes the single most important milestone on the road to proper management and treatment of neurological handicaps of any type.

What I have said so far could be applied equally to children and the parents of children with practically any handicapping neurological condition. But this morning, we are considering especially children having *Minimal Brain Dysfunction* (a medical term), which results in a problem of *learning or language disability* (the common educational term used by increasing numbers of educators and parents). Perhaps the most important consideration from the standpoint of the emotional impact is the actual selection of a name for the disorder. As you know, and as you have heard, this condition is known by a wide variety of names throughout the country. Awareness of the confusion in terminology, and the number of labels applied to these children has come about largely because of the immense emotional effect that the label alone may have on the child and/or his parents.

This occurs daily in private practice in connection with the problem of convulsive disorder where a fear of the term epilepsy is uppermost in the minds of many parents. It is obvious, of course, that the application of a name, or more importantly, a specific name such as epilepsy or brain damage does not change the underlying problem one bit, but I have yet to find an easy way to convince the parent that the child has either of these conditions when they are labeled by these specific names. So the emotional impact of the disorder of minimal brain dysfunction has led to the confusing array of terms by which the condition is known, and also to an increasing awareness of the scope and importance of the problem. This has, in turn, led to conferences on both the local and national level, which have become increasingly frequent during the past two years. The conferences are well advertised, and the information and materials have been more widely disseminated.

Dr. Clements has told you of the efforts that are being made on the national level with the cooperation of the Federal government. In addition, you might be interested to know that there is now a National Association for Children with Learning Disabilities with headquarters in New York City, as well as state organizations in many parts of the country, and many local organizations devoted to the welfare of children having minimal brain dysfunction.

Our present understanding of the child with minimal brain dysfunction is that he or she does indeed have an organic neurological disability existing at a level which we cannot identify with absolute certainty, but which does produce a delay in the development of specific neurological talents. We believe that because of some minor chemical or physiological abnormality, perhaps determined prior to, or at the time of birth, or through heredity, the child is actually handicapped just as is the child with cerebral palsy or poliomyelitis, but, in a much less obvious and demonstrable way. We believe this condition is temporary, that the child gradually outgrows it more or less, and usually is able to achieve normal potential somewhere between 13 to 15 years of age. Furthermore, we feel that the organic neurological nature of this condition is indicated by the fact that these children do have abnormal electroencephalograms, do have slightly abnormal neurological reflexes, and other findings on careful examination, and in most cases appear very much like the child who actually has had some known neurological disease or injury to the brain at an early age. Children having such diseases and injuries frequently appear with almost identical findings as do these children with minimal brain dysfunction. Yet, in over 80 percent of these children, we are unable to document any history of significant disease or injury to account for the problem. Therefore, we feel reasonably certain that something must have happened sometime between the moment of conception and the moment of birth (or shortly thereafter), which we are unable to identify, but which does produce the same type of picture as does a more recognizable disease or illness, such as encephalitis.

The very fact that these children appear normal to the parents, other members of the family, and close friends makes it increasingly difficult for families to accept the idea that there is something different about the child which may require a long period of special management and treatment, special education classes, and special considerations within the family structure. The usual story I obtain from the parent is that the mother has known for several years that the child was not quite "right" in some way. It is, as often as not, the father who has resisted the acceptance of this, and of course, neither is aware of the exact nature of the problem. Thus parental acceptance of the difference in these children is even more important than in the child with an obvious neurological handicap or disability. Until such acceptance, the investigation along psychological, neurological, and educational lines, and the various forms of treatment, including special education classes, physical therapy, and often specific medication, is denied to the youngster with this type of problem. Perhaps even more than in the case of the physically handicapped child the parent of a child with brain dysfunction must accept that the child may not be able to live up to the father's or mother's expectations in school, professional career, or socially. Occasionally, marital relations are affected by the presence of a child with such a handicap, particularly if he is a first born or an only child. The natural inclination of many parents seems to be to look for the cause of the condition, and when cause is found, the next question arises—"Who is to blame?". From this attitude, of course, can come very real and disrupting attitudes and ideas on the part of one parent, or the other, which may lead to accusation or exhaustive and unwarranted review of each other's family background in an effort to find clues of responsibility. This attitude may lead to a potential breaking up of an otherwise happy marital relationship.

More than anything else, the well-being of a family that includes a child with this type of neurological handicap is disrupted by the various features of behavior accompanying the overall condition, features which have been so well outlined by the previous speaker. The impulsiveness, the outspokenness, the distractability, the hyperactivity and emotional lability in a child who appears outwardly normal, and in many ways seems not only of normal intelligence, but often super-sensitive and overly aware of shortcomings (particularly in the inability to please parents and teachers), presents a most confusing dilemma to all with whom he comes in intimate contact, and particularly to those having a close emotional interest in him. These behavioral patterns are not unique to these children, but represent rather a fairly consistent combination of patterns seen in all children at one time or another, but which are carried to extremes in these youngsters with variable degrees of neurological impairment. It is hardly surprising to conclude that the very nature of the behavioral pattern is destined to produce a continuing disruption of an otherwise normal family structure.

So far, we have attempted to present this as a straightforward, rather clearcut clinical syndrome. Unfortunately it is not so easy! The psychologist and the sociologist tell us that there are other conditions and circumstances that have the potential of producing a child with very much the same appearance and symptoms as the child with minimal brain dysfunction. I refer specifically to the child from an impoverished environment, whether it be the result of educational, intellectual, cultural or social deprivation. These children are often impossible to separate from the truly brain damaged child, and I feel certain that it is in the identification and recognition of these children that we may realistically expect the greatest assistance from the social worker. The physician, the psychologist, the neurologist and the educator are usually in no position to evaluate the social, cultural and intellectual environment from which these children come. The aid of a well informed and astute social worker would be invaluable in assisting in the accurate diagnosis of this problem. I am sorry to say that there are few communities where this type of service is readily available to help in diagnosis. Frequently, a thorough investigation of the family and social situation would be invaluable in the final medical and educational planning for certain individual children.

The role of the social worker in the overall consideration of children with some type of organic brain dysfunction would seem to fall into three categories: first, the assistance in early recognition of the disorder, either by indirect observation in the course of otherwise routine work (which presupposes a knowledge and recognition of the condition) or through direct investigation in collaboration with other disciplines working in the same field; second, help for parents and families in accepting the realities of the problem, and thus gaining entry into the many avenues of assistance that are open to them; and third, aid in the acceptance of the problem, and in many cases, the provision of a type of supportive psychotherapy that is all too frequently unavailable to many strata of society and often unavailable in entire communities.

I have attempted to present to you from the standpoint of a practicing neurologist the scope of the problem of the child with behavioral and learning problems caused by what we refer to as minimal brain dysfunction. I have tried to cover especially the emotional impact of the acceptance of this diagnosis on both the child and his family, and I hope have presented some ideas on the role of the social worker in the identification and management of this most provocative and emotionally laden subject.

PARENT SERVICE PROGRAMMING IN A CHILD DEVELOPMENT CENTER

DANIEL L. MCCARTHY, M.S.S.W.

The Easter Seal Child Development Center in Milwaukee, Wisconsin, has accumulated enough years since its inception in 1953 to properly describe it as a teen-ager. As with its human counterparts, this teen-aged service program can recollect moments of delight and disappointment; can remember flirtations with fantasy and some harsh lessons born of confrontations with reality. But through it all, it has continued to pursue its life-long ambition: that of serving children who have problems in learning.

During the course of any one week in the program year, approximately 100 children participate at the Center. Over 80 percent of this nonresidential population is comprised of youngsters between the ages of 3 and 8 years who take part in small preschool groups or receive individual programming, dependent upon the determined level of their readiness. Other children, from 5 to 12 years old, many of whom attend public or parochial schools in the area, are given individual tutoring for specific academic deficits.

The orientation of the child treatment program is based on the premise that good early childhood education enhances wholesome development. The program recognizes that the needs of exceptional children require experiences of various kinds that are different in extent, duration, kind and/or intensity than those of normal children.

Although the deficit or disability areas which result in a child's being accepted into the program are given the major emphasis, other areas of functioning which may be developing more normally are given consideration so as to advance the total social-psychological development of each child. The program is organized to evolve appropriate emotional, social, cognitive, perceptual, motor and language characteristics. For example, a youngster with difficulties in control of emotional behavior may be provided with small group as well as individual relationship experience directed toward helping him acquire both flexibility and appropriateness of control and participation.

The major goal of the program is to enable each child to maximize his strengths and minimize or circumvent his difficulties in the direction of optimal self-realization. To the extent that this goal can be achieved, the child is subsequently able to successfully enter other community education, care or training programs at that level most appropriate to furthering his development.

The focus of the Center is on the *whole child,* not just on his disabilities. It is because of this focus that the Center has established as an integral part of its operation a parent counseling and education program. The Center recognizes that parents of handicapped children share with all other parents the primary responsibility for his development to the point of school readiness; and that rearing an atypical child is an additional challenge that can be a bewildering, and at times, discouraging ongoing task.

We also recognize that enlightened cooperation from the family in the environment beyond the Center has strong bearing on the success of the program efforts in behalf of the child. The emphasis in the parent program is multiple: assist the parents in understanding their children and their disabilities; develop or adapt child-rearing practices and skills to best meet the special problems presented in specific situations; and aid parents in better understanding their own psychological and emotional structure and how they can best use their resources for optimum functioning as adults and parents. Concurrently, the counseling staff helps parents to comprehend and to share in what the Child Development Center is attempting to do in its work with their children.

This commitment to the importance of parental involvement is expressed at the time of intake by the expectation of parental participation wherever manageable as part of the service program. The interpretation made to the family stresses the agency's understanding that having a child with special needs places special demands on the family that are not always easily recognized or met; that through discussion, these needs can often be better understood, and that the agency-parent joint effort considerably increases the likelihood of meaningful gain by the youngster from his experience in program.

The Center therefore employs two kinds of service personnel: teachers and counselors. The teacher belongs to the child, the counselor to the parent. The lines of relationship and communication are deliberately kept relatively firm to permit the new social interactions and experiences in program to more freely exert their full developmental impact on the child. Parents, on the other hand, are freed of the role of adversary in which they are frequently cast in their associations with schools. Instead they find themselves in direct and continuing contact with a resource person who recognizes the importance of their parental responsibilities, who will listen to their side of the story, and who will help them with their needs.

When children are placed in a preschool group, the parents meet with their counselor in a group comprised of all of the parents of the children in that particular class. Each parent group meets regularly once weekly for 45 minutes to an hour and a half, on an assigned day during the time their children are in program. Initially the approach is quite directive. The counselor assists the parents in a new group through introductions of themselves and their children. From there the parents are guided into an understanding of the rationale for their children's grouping and what some of the activities and goals of the class are. In this way the counselor helps the parents begin to see a relatedness among the children as well as similarities in difficulties. Each parent is encouraged to develop an interest in all the children in the group, which, in turn, brings about meaningful relationships among the parents themselves. This is the motivating force for involvement in each other's concerns and efforts, as well as a source of reassurance. They can be understood and their fears and frustrations can be shared. The parents perceive their meetings as a place to receive help and to give help in return.

Over the school year the weekly counseling sessions generally focus on one of three major areas: current problems; classroom activity; or informative concerns.

CURRENT PROBLEMS—Specific difficulties generated by the presence of an atypical child within the family constellation and the community are considered. These include such matters as deciding whether or not to put the child back into diapers to shame him for having forgotten his toilet training; contriving ways neighborhood children can be permitted to play with the handicapped child; examining the issues underlying an uncomfortable indecision about taking the program child to church.

CLASSROOM ACTIVITY—Parental observations are made of the children in various segments of their routine at intervals throughout the school year. To assure a typical sample observations are made through one-way glass from rooms adjoining each classroom. Sound equipment enables the observers to hear what is taking place as well.

Descriptions of behaviors the counselor and teacher have observed on other occasions, and presentation of work done in class augment direct observations. Discussions follow, considering the child's performance and techniques used by the teacher in various circumstances. These are related to the parent's efforts in the home. The teacher may meet with the parent group occasionally when it is felt this can be managed and is beneficial to the children, program and the parents.

INFORMATIVE CONCERNS—Clarification and/or amplification of factual or theoretical material of special significance for these parents is presented. Examples of such topics are: I.Q. scores, intelligence tests, human anatomy, heredity, discipline and control, requirements for special classes or residential placements. The counselor employs other staff or outside help in considering areas of interest that are beyond his own competence.

At the end of each semester the group meetings are suspended for individual progress conferences with each family. The written teacher evaluation, content of parent group meetings and observations, and specific concerns of either parent or agency are synthesized into a review of the current semester and made a basis for the direction of future efforts and goals.

Counselors are available to parents of their groups on an individual basis whenever their services are required. Sometimes such contacts simply concern procurement of extra-agency services for the child, or exchange of new information pertaining to his case. These conferences are more likely to involve pertinent personal matters which are either inappropriate or too lengthy for exploration in the group situation. In such instances where these latter concerns are felt to lie outside the agency function or to be beyond the capabilities of the counselor, the counselor attempts to effect referral to a proper community resource.

When a child is seen individually, his parents are counseled by themselves. The frequency is dependent upon the relative severity and pervasiveness of the child's difficulties, the perceptions of the particular parents which effect the child-parent relationship, and upon the counseling goals in that specific case.

If the counselor is to be effective in his/her role, it is essential for him to be familiar with the program child of each parent he has as his counseling assignment. He must draw upon as many sources of knowledge as possible: personal observations of the child's performance in the classroom; conferences with the teacher and other staff; clinical data, and background information of all kinds, including the focus and attitudes of the child's family. Acquisition of this required knowledge is accomplished through the performance of the counselor's second role in the agency, that of case manager for each child whose family is his counseling responsibility. Case management is the complex of liaison duties, from intake until referral elsewhere, which is intended to coordinate efforts made in behalf of the child within the agency or through other resources.

Within the broad spectrum of children seen at the Center, there has consistently been a number of youngsters whose difficulties have been assessed as the result of "brain damage" or one of its diagnostic aliases. Parents of such children are routinely among those most troubled, for their offspring are usually some of the most difficult to understand, to manage, or to defend. Therefore, in terms of counseling, we would agree that minimal brain dysfunction *is* a new problem area for social work from several standpoints.

1. Minimal brain dysfunction is a comparatively new diagnostic entity, complex both in its formulation and proper application, and not well understood. Although there is a broad resemblance between the variations in terms of difficulties in function, this conceptual position would be greatly simplified if such children were characterized by a set of specific symptoms common to all. They are not. Social workers need to familiarize themselves with the complexities of this diagnostic concept and help make precise information known, to parents, to professionals, and to the community.

2. The diagnosis of minimal brain dysfunction is sometimes overemphasized to draw the attention of certain professionals to the fact that that function has not only a psychogenic but an organic aspect which must be recognized in assessment and remediation. When the result of this effort is to move the pendulum of approach to the balanced center position in planning for a particular child, a positive step of sizeable

dimension is taken. But this is a nation of trend and fad, and the tendency to run to extremes is great. The possibility of "going organic" would appear more than possible, although unjustified in light of current knowledge. Social workers have the opportunity to again be an effective force for sound balance in assessment and programming, once more putting into practice their regard for the individual.

3. Minimal brain dysfunction, like certain other categorical conditions, has the potential of lending an identification that militates against those so described, rather than assisting them. For the lay public, the distinction between brain dysfunction and mental illness is not all that clear. In some educational quarters, brain damage has become synonymous with the Strauss Syndrome which has, in turn, become synonymous with "batten down the hatches. I want no part of it". Even where the term is properly understood and applied, a child unintentionally can be made more typical of the syndrome instead of more free of its limitations.

Recently one of our teachers in working with a brain-injured child superimposed Lucky Charms on dots in a counting task. The child had been having no consistent success, as if number concepts were beyond him. She told the boy if he named the number on the card correctly, he could eat the candied cereal. This youngster worked without pause for approximately a half hour without error, identifying quantities from 1 through 6, something he had never approached before. What if that teacher had been convinced Kenny could not do number work because of her acceptance of his cerebral dysfunctions? How many children are having the magnitude of difficulties they are, not because of the inexorable limitations of brain dysfunction, but because they have been forced into a life style which they have come to accept? Social workers can and must strive to see that the social and academic environment is positive and helpful and not negating for such children.

As comparatively young as such children generally are when they come to our attention, most of their parents already reflect having wrestled at length with the question of the extent of their responsibility for the child s being the way he is. Sometimes this is the result of an accusation by some authority figure of parental mishandling; sometimes it is self-evolved doubt, born of their search for cause. The diagnosis of brain damage or minimal cerebral dysfunction is sometimes a helpful explanation, but it does not, however, *always* provide absolution. Sometimes a new sense of guilt merely replaces the old one, and the family attempts to make amends for not having understood, by overprotection or indulgence.

The most extreme example in my own experience was that of a well-intentioned couple who, after years of difficulty, learned their 5 year old son was brain-injured. All too familiar with the chaos that occurred whenever they wanted to go out, they contrived a way to help him avoid what they had come to accept was his response to the unmanageable stress of separation. They would have their baby-sitter come, then separately they would go downstairs, which Steven would allow, climb out the basement window, and go to their movie.

Granted that most situations do not become quite this bizarre, parents of atypical children nevertheless often find themselves in predicaments born of misapplication of knowledge as well as of the lack of it. Some parents, justifiably unversed in professional jargon, be it that of doctor, psychologist, teacher or social worker, get hopelessly confused or discouraged by the barrage of technical "explanation".

In two entirely separate situations, mothers of children described to them as having minimal diffuse brain damage stated to their counselors the hopelessness of the situation because their children's brains were "fused". I suggest you refer to the dictionary for a definition of fusion and see how encouraged you would be with that understanding. Another mother, with good family background and two years of college, asked me at intake just where the brain is: is it right in back of the eyes? Too often there is a tendency to be presumptive in interpretations to parents, to assume they are emotionally and intellectually capable of comprehending almost instantaneously that which it took most of us years to acquire.

One of the findings in our research on the "Child-Rearing Practices of Parents of Handicapped Children" and in our on-going clinical observation is that there is no meaningful correlation between the relative severity of a child's handicap and parental perception. Concerned parents tend to become so preoccupied with the handicapping condition that they lose sight of the child, particularly if their comprehension of the professional position persuades them to do so. When this happens, the parent can lose the natural confidence that is derived from being a parent, and in his uncertainty, become unnecessarily ineffectual.

The overall goal of our Child Development Center can perhaps be made most clear by a little story reported by a father who "played possum" while his children tried valiantly to rouse him to take them for a ride. Finally, one little fellow bent over him, lifted one eyelid gingerly and gleefully reported to the others, "He's still in there!" We keep lifting those eyelids of difficulty and reporting "the child is still in there!"

Other than medication, there is little that can be done for children with minimal brain dysfunction outside of striving for improved behavior and ability through effectively modified learning techniques appropriate for a specific child dependent upon his strengths, deficits, temperament and environment. The team approach involving the skills of the doctor, psychologist, teacher, therapist and social worker is particularly useful in this endeavor. We submit to you the team approach with these youngsters will be most effective in achieving maximum possible gain if you remember to consider and actively involve the most important members of the team—their parents.

EDUCATIONAL PRINCIPLES FOR CHILDREN WITH LEARNING DISABILITIES(1)

Doris J. Johnson, M.A.

Educational programming for children with learning disabilities depends on definition of the population and the individual disorders. Since there are many reasons for learning difficulties and school failures, the group must be defined. Because of the variety of symptoms manifested, it is necessary to analyze each child's learning patterns and problems. The homogeneity as well as the heterogeneity of the population must be considered before planning remedial programs. Without a definition and diagnostic study, there is little basis for placing children in special education programs. Moreover, the methods and procedures are apt to be selected randomly without a frame of reference or rationale.

Myklebust(2) has stated that the learning disability group is homogeneous in that it consists of children who are not primarily retarded, emotionally disturbed, sensorially impaired, culturally deprived, or grossly cerebral palsied, yet who are unable to learn and profit from the normal educational experiences. The group is heterogeneous in that the learning problems vary in both type and degree.

Recognizing the complexity of the human brain as well as the various forms of verbal and nonverbal behavior that a child is expected to learn, it is evident that many types and combinations of problems can result from even a minor disturbance. Whereas some children have difficulty speaking, others have problems in reading, writing, or arithmetic. Others have only nonverbal problems. Some have difficulty with perceptual skills, others with memory. Therefore, none of the typical diagnostic categories such as aphasia, dyslexia, perceptual handicap, or hyperkinesis is sufficiently inclusive to denote the total group. As a result we are compelled to use the broad term *learning disability* but simultaneously to define the individual problems.

Diagnosis and Evaluation

The definition and classification of a learning disability evolves from a comprehensive study of the child done by a team of many professional persons, including psychologists, neurologists, pediatricians, electroencephalographers, ophthalmologists, audiologists, specialists in communicative disorders, social workers, and educators. Information regarding sensory integrity, health, neurological integrity, intelligence, language,

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(1) *This article was adapted from a paper presented at the seminar on children with minimal brain injury of the 1964 annual convention of the National Society for Crippled Children and Adults, in Detroit, Mich.*

(2) Myklebust, Helmer R. Learning Disorders: Psychoneurological Disturbances in Childhood. *Rehab. Lit.* Dec., 1964. 25:354-360.

educational background and achievement, personality, motivation, and other aspects of behavior is basic to the diagnosis.

Such a study can rule out problems of auditory or visual acuity, mental deficiency, primary emotional disturbance, and motivational or other factors that might be a deterrent to learning. Since the psychoeducational dynamics vary according to the cause of an existing problem, every attempt is made to study the nature of the disability. Certain children who have more than one disorder must be considered multiply handicapped, and the educational plan modified accordingly.

In addition to the studies outlined above, an evaluation of the *ways* whereby a particular child learns also is significant. Our concern is with both *capacities* and *processes*. When planning remediation the teacher should be aware of a child's grade or age level in various language and academic skills, but she also must know *how* he deviates. Knowing only that a child performs at a second-grade level in arithmetic is inadequate information for outlining educational goals. Without consideration for processes, the methods tend to be vague or even inappropriate. The psychoeducational study includes a battery of language and achievement tests that yield grade or age levels, but it also includes studies of perception, memory, concept formation, nonverbal functions such as body image, spatial orientation, time orientation, and social perception. Many processes and systems are studied.

In our work at the Institute for Language Disorders, Evanston, Ill., Myklebust has stressed the need for studies of intrasensory, intersensory, and integrative learning. We attempt to determine how a child learns through each sensory modality and how he integrates information he receives from two or more modalities. For instance, we investigate a child's ability to discriminate, interpret, and remember what he hears, sees, or touches. We also study his ability to associate what he hears with what he sees or feels. The purpose is to delineate the sensory channels through which learning is impaired and also investigate the level of the involvement, that is, whether the disability occurs primarily at the level of perception, imagery, symbolization, or conceptualization.

All of the findings are then correlated in order to describe the learning problems as specifically as possible. One cannot study academic achievement without relating the findings to intelligence, motivation, previous educational experiences, and impaired learning processes. Likewise, one cannot study isolated processes such as perception or memory without relating them to areas of underachievement or learning failure.

Evaluation of another aspect of behavior, the modalities for expression or output, should be included. Usually a disorder of perception, memory, or comprehension interferes with output, but certain types of deficits affect only the ability to learn the motor patterns for speaking, writing, or performing certain nonverbal acts, even though there is no paralysis. If the disability affects the oral mechanism, a child may comprehend language but be unable to communicate because he cannot form the motor patterns for speech. If the deficit occurs in visual-motor areas, he may be able to speak, read silently, and think clearly but be unable to copy, write, or carry out nonverbal functions such as tying shoes, brushing teeth, or manipulating utensils.

Although the psychologist is responsible for most of the intensive behavioral study, the teacher has a vital role on the diagnostic team as an observer and one who can gather information about a child's learning patterns. The teacher has unique opportunity and responsibility for observing the child while he is engaged in learning tasks; hence she must be prepared to collect data systematically and categorize, store, utilize, and evaluate the information. The goal is to sift through the data, look for patterns of relationship by noting a child's successes and failures, and then determine which "learning circuits" are intact and which are weak or inoperative.

Task Analysis

Because teachers need a means for gathering data and also because many are confronted with children who have had inadequate evaluations, we suggest a system of task analysis. By analyzing the nature of a task, considering the expected mode of response and the processes necessary to complete it, and then noting a child's performance, a teacher can learn a great deal about the learning disability and areas to be remedied. Furthermore, an emphasis on task analysis will shift the teacher's orientation from subject matter in the curriculum to processes.

As an example, note the information that can be obtained by inspecting spelling assignments and student performance. Most average children show little variation in spelling ability irrespective of the presentation. Those with learning disabilities, however, may show wide discrepancies in performance, depending upon the nature of the assignment and their particular disorder. An eight-year-old dyslexic boy with severe visual memory deficits made only three errors on an oral spelling test but missed more than half of the words when they were dictated because he could not revisualize letters. The boy was able to associate the spoken letters *j-a-m* with the sweet substance he put on bread but could not associate the printed word with the object.

A high school sophomore girl had a different type of spelling disability. On a multiple choice spelling test she received a B but made only a D on a dictated test. Examine the nature of the task. The first was purely visual and required recognition of the correct spelling. The second called for the conversion of an auditory stimulus to a visual-motor pattern. Because this student was unable to transduce information from the auditory to the visual modality, she could not write words from dictation. In contrast, some can write but are unable to spell orally because they cannot reauditorize letter names. Throughout the diagnostic study and daily teaching, this type of task analysis is invaluable. A sample guideline for tasks is given below.

First, a task is examined to note whether it is primarily *intrasensory* or *intersensory*. For example, on auditory discrimination exercises, is the child asked to close his eyes, listen to two sounds, and tell whether they are the same (intrasensory) or is he asked to point to a picture or letter that goes with the sound (intersensory)? Similarly with tactile discrimination, is he asked to feel objects and select one that is different (intrasensory) or to feel an object and match it with a picture (intersensory)?

Next, tasks are studied with regard to the *sensory modalities* that are involved. Since most learning is done auditorially and visually, these avenues are explored to the greatest extent, but taction is not ignored, particularly if it is to be used as a supplementary teaching modality. Task analysis at these two levels assists the teacher in discovering which channels are intact and in deciding whether the child can tolerate multisensory stimulation or whether stimulation needs to be reduced to a single modality.

A third type of analysis is suggested. This pertains to whether the task is primarily *verbal* or *nonverbal*. Although many children have difficulty with both types of learning, some have problems only with verbal and others only with nonverbal. For instance, certain children with auditory disabilities cannot associate the bark of the dog with the animal, nor can they understand the verbal symbol *dog*. Others, however, have no difficulty interpreting nonverbal sounds but cannot comprehend spoken words. In the area of visual learning, some can read (interpret visual verbal symbols) but cannot grasp the significance of nonverbal events. Therefore, the teacher examines each assignment and notes the success and failures. In a science experiment she considers whether the student must read and comprehend or whether he must look at a series of pictures to draw conclusions. In geometry she considers whether the problems are presented orally, in writing, or in the form of diagrams and other nonverbal figures. This aspect of our analysis is particularly crucial for determining the *ways* in which new material is to be presented.

A fourth part of the study relates to the *level* of the task. Often learning disabilities are viewed only in terms of a perceptual or symbolic disturbance, whereas they must be studied at many levels. Specifically we try to see the involvement primarily at the level of perception, memory, symbolization, or conceptualization.

A fifth type of analysis pertains to the *expected mode of response*. The teacher should ask, "How am I expecting him to answer?" Most responses fall into one of three major categories. The first is pointing, marking, gesturing, or manipulation of objects; the second is speaking; and the third is writing. An analysis of response patterns is beneficial for planning specific remediation and also for suggesting modifications of assignments in the classroom. All too often children are penalized because they cannot respond in the expected manner, and frequently the teacher feels they do not know the answer or have not acquired the information.

For purposes of remediation it is necessary to know if the problem is one of reception or expression. If it is in output, the learning disabilities teacher tries to work through the problem, but, in the meantime, the classroom teacher should try to present assignments so the student can demonstrate his ability. For instance, in exploring a pupil's knowledge of numbers in sequence one considers the available modes of response. Depending upon the particular disorder, the instructor might ask the child to say numbers from one to 10, write them, or arrange cutout numbers.

Similarly in language, a nontalking child can demonstrate his ability to understand if he is presented questions that do not demand an oral response. One who is unable to write spelling words because of a visual-motor disturbance might be permitted to spell orally, type, or arrange anagrams in order. As indicated previously, the learning disabilities teacher will work on the specific deficit but the classroom instructor should become aware of alternative ways of wording questions or modifying tasks so the student can remain in the group and respond successfully.

Another means of gathering data about learning problems is analysis of a pupil's oral and written expression. Extended periods of lessons are recorded and transcribed so his spoken language can be examined for productivity, vocabulary, syntax, articulation, and other factors. A study also is made of each child's response in relation to the input, *i.e.*, the teacher's questions. Often the intuitive teacher is unaware of the ways in which he modified statements so the pupil could respond. By seeing the transcribed material, one can observe the types of questions each child failed and note any discrepancies between input and output.

Analyses of written language are made in a similar manner, often in a discussion with the child himself. Themes, reports, and stories are examined to note errors of formation of letters, spacing, alignment, spelling, ideation, word usage, punctuation, and other dimensions of written language. A systematic monitoring of errors is a major part of remediation.

Relationship of Learning Functions

Critical to educational planning is an understanding of the interrelationships of language and learning processes. Consideration must be given to the relative impact of a disability on various forms of learning and behavior. For example, disorders of input impede output; a receptive language disorder interferes with expression. Reading disabilities affect written language. Problems of visual memory often affect reading and spelling but most likely will interfere with revisualization of numbers and other symbols.

Moreover, a learning disability generally affects far more than academic achievement; it interferes with total social maturity. Those with reading disabilities cannot read warning signs, fill out application forms for employment, or use telephone books for emergencies. Those with oral language problems cannot give and take messages or relate experiences. Those who are hyperactive or unable to learn motor skills cannot participate in activities with their peers or perhaps even perform simple routine responsibilities without help or supervision. As a result, over-all social competence is reduced. Even though some disorders appear to be relatively specific, one should be aware of the interrelationship of functions both in diagnosis and remediation.

Without an understanding of the reciprocity of functions, there are certain hazards in teaching. If the problem is defined solely as a reading disorder, the specifics and implications for education are overlooked. Procedures may become too general or the program too narrow. On the other hand, if only symptoms such as a visual-perceptual impairment or an auditory memory problem are delineated, there is a tendency to teach "dead-end" skills without relating them to basic areas of language, communication, and learning.

For example, innumerable writing disorders occur and each must be treated according to the nature of the deficit. Note the illustrations on the next page.

Child A could not write because he could not read. Although he could copy letters, words meant nothing to him. His oral language was excellent; he could participate in class discussions and pass oral examinations. His primary disability was dyslexia based on a visual memory problem. The emphasis of training was on reading, that is, input before output. A phonics approach was used in teaching but supplemental training for visual memory and sequencing was provided. After about three years in the program the boy remarked, "I can finally see words in my mind." Prior to that time, he had attacked each word as though he had never seen it before.

Child B had no difficulty reading but could not remember the sequence of letters within words or the visual image of certain letters. Hence he could not spell. He could remember for purposes of recognition but did not have full recall. Revisualization of letters improved with training in taction, and emphasis was given to simultaneous association of the auditory and visual sequences of letters within words.

Child C had no difficulty in oral language or reading, but he could not formulate ideas properly in writing.

Child D, on the other hand, had difficulties in both oral and written formulation. He wrote as he spoke. The emphasis in training initially was on the improvement of oral language, which was then translated into written form.

Child E could not write because he could not form the motor patterns for letters. Oral language and reading were superior. Similarly, written formulation and spelling were good, but because of a visual-motor disturbance his writing was more like that of a 6-year-old than a 10-year-old.

Similar illustrations could be given with regard to arithmetic. Whereas some children cannot grasp ideas of quantity, others cannot associate ideas of quantity with auditory symbols, others with visual symbols. Some can calculate when the problems are given auditorially but they cannot revisualize numbers. Repeatedly we see the need for specific descriptions of each disability.

Illustrations of Writing Disabilities

Child A—C.A. 17 years

morpoel guysel noyepl yafigd rlyerd mipul

Child B—C.A. 10 years

The dog arn ot The m'm

Child C—C.A. 14 years

The king live in castle

Child D—C.A. 9 years

The baesball ply is hite the ball.

Child E—C.A. 11 years

Evrybody is Happy.

Planning the Remediation Program

The primary purpose of a comprehensive study is to outline a program of remediation. The goal is to help the child learn more effectively. Learning sometimes has been defined broadly as a modification of behavior. In order to help a child modify his behavior, teaching procedures frequently must be modified. We have suggested that children with learning disabilities do not profit from the normal educational or environmental experiences; therefore, teaching technics will vary. An alteration of procedures, however, is not synonymous with overall reduction of goals but rather suggests that material may need to be more structured, presented at a slower rate, or in a different manner. It is the route to the goal, not the goal itself, which varies.

If one examines any area of learning such as reading or language, the complexity of the processes and need for varied methodology become obvious. The child who is unable to read because of an auditory-perceptual or memory problem is not taught in the same way as one who has visual problems. Similarly, the child who cannot remember words receives different remediation than does the one who cannot understand.

In our clinical teaching approach, intact modalities are utilized to facilitate learning in deficit areas. The educational objective is not merely to raise self-confidence by working on assets, since this can lead to overcompensation with little or no improvement in weaker areas. A receptive aphasic who is taught only to read and write may never talk if auditory capacities are not developed. On the other hand, a program that emphasizes training to the deficits may be equally ineffective.

To cite a specific example, an eighth-grade boy with visual perceptual and memory disorders had failed a test in his graphic arts course twice. The test involved the memorizing of a complex plate of letters and numbers in a specific arrangement. Parents and teachers had worked with him for several weeks trying to help him memorize the visual pattern but with little success. Finally, the father brought the test to the learning disabilities teacher for suggestions. After a 20-minute period with the therapist, the boy learned the pattern and, on the following day, he passed the test. The therapist had utilized an intact modality, which in this case was audition, outlined structured auditory units, and simultaneously presented them with the visual pattern. Modification of the task meant success rather than failure for him.

It is evident from this example that educational planning requires knowledge of intact areas of function as well as knowledge of the deficit areas. We need to know the most effective avenues for learning. It is possible that a child different from this boy would learn more readily from taction and kinesthesis than audition. Therefore the presentation would not be the same. Often a period of diagnostic teaching is necessary to establish the most effective combinations for learning.

Multisensory stimulation is not necessarily the solution. Although it is sometimes assumed that bombardment from all sensory avenues will be beneficial, in certain instances it actually impedes learning since the child may not be able to tolerate the excessive stimulation or integrate the information. Therefore, we attempt to find and utilize the most effective combination of modalities for learning.

Not all procedures are new. Whereas some new technics will be devised, many existing educational practices can be utilized if they are applied appropriately.

Educational Program and Goals

A major point to be emphasized is that the child must be *taught*. New concepts, new materials, and new experiences should be introduced. The mere presentation of an interesting worksheet or exercises is not necessarily teaching. Moreover, keeping children quiet or busy is not sufficient for education and learning. New experiences must be provided that are in keeping with the child's level. Each of these should be carefully timed and paced, since many children become very frustrated and overwhelmed with the introduction of new materials. Nevertheless some frustration is essential in all learning. A program that is understimulating is as ineffective as one that is overstimulating. The goal is to foster, not inhibit, intellectual growth.

The nature of the educational program depends upon the severity of the disorder and the multiplicity of involvements. Most communities need at least two types of programs. Special classrooms are needed for those whose learning and adjustment problems are so great that they cannot profit from any regular classroom instruction. Others, however, do not need to be removed from the group all day and can profit from many classroom activities. The teacher, trained in learning disabilities, sees a child each day for an hour or more, depending upon his needs. These programs should be differentiated from tutoring, in which a teacher provides only supplemental help in academic subject matter. Emphasis should be given to the improvement of the disability so the student can acquire information for himself or from normal classroom experiences.

Careful planning of an integrated educational program is essential Decisions regarding the type and number of activities a child can handle are based on discussions with many members of the school staff. One literally "walks" through the child's curriculum to determine in which areas he deviates. It should not be assumed that integration in the normal class begins with art, music, gym, or other nonacademic periods, for these may be the most difficult or overstimulating. Integration into regular classroom activities depends upon the nature of the deficit, the child's level of functioning, and the specific skills or subject matter to be learned. Frequently suggestions must be given to classroom teachers regarding educational mamagement. A slight change in a seating arrangement, or in the rate of dictation of spelling words, or in the daily sequence of activities could mean the difference between success and failure for many boys and girls.

Progress must be evaluated periodically and goals may need to be adjusted. In some cases progress is rapid; in others it is slow, but improvement can be demonstrated. Prognosis is dependent upon many factors, including over-all level of intelligence, motivation, parental cooperation, age at identification, appropriate remediation, and level of aspiration.

Part of the population will go to college; others will terminate their education at the end of high school. Guidance throughout the entire academic career is needed. Selection of courses, academic load, and sequence of courses are critical factors in educational planning. One very bright dyslexic boy decided to go through high school in five years and take a lighter load rather than fail with a full load. As a result of this decision his grade record changed from failing to passing and he is currently enrolled in a small liberal arts college. Pupils ending their education with high school need special vocational planning. Their residual disabilities may interfere with certain occupations and must, therefore, be taken into consideration. Guidance for those whose expections are beyond their capabilities also is necessary. Throughout all of the planning, the student should be involved in decisions. He perhaps knows his abilities and limitations better than anyone and should be encouraged to verbalize the things that are difficult for him. Often he provides valuable insight into the learning problems and process.

Educational programs for children who have learning disabilities are not only justified; they are mandatory if we are to meet the needs of a rather large segment of the population. Although not all of these need special class placement, school administrators should be aware of the needs. It is not enough to send these children through school and give them diplomas; they need to be educated in order to utilize their potential. Without appropriate habilitation, they may well be on school dropout lists, in juvenile courts, in mental hospitals, or on relief rolls. If their needs are met, they may become independent self-supporting citizens who feel a sense of personal worth and can contribute to society.