INTRODUCING PROVISIONS FOR PERCEPTUALLY HANDICAPPED LEARNERS TO REGULAR PUBLIC SCHOOL CURRICULA

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ABSTRACT

INTRODUCING PROVISIONS FOR PERCEPTUALLY HANDICAPPED LEARNERS TO REGULAR PUBLIC SCHOOL CURRICULA

by George Emerson Monroe

Statement of the Problem

This study identifies and describes new perspectives on the etiology and treatment of learning disabilities. The description included the (1) misunderstanding that held back development in educational programming, (2) growth of special education due to a lack of adequate provisions in regular public school programs, (3) discovery of new evidence supporting largely differential development as opposed to damage and injury, (4) importance of early detection of perceptual disorders, and (5) need for individualized instruction based on results of comprehensive diagnosis.

This study was undertaken to (1) establish the significance of perceptual handicaps relative to slow learners and non-learners, and (2) explore ways in which public school curricula could better provide for the educational needs of these children.

The study was historical, descriptive, and analytical in nature.

Securing the Data

Primary sources of data included government sponsored studies, reports on conferences and seminars sponsored by associations for the help of children with learning disabilities, special publications and unpublished materials produced by individuals, associations, and school systems on programs and research, correspondence and interviews by the writer with members of the staff at Northwestern University Medical School, and observations of several public and private school programs for children with learning problems. Secondary sources included various books and articles pertinent to the study.

Major Findings of the Study

Substantial empirical evidence indicates that: (1) up to 25 per cent of elementary school-age children have some degree of perceptual disorder(s) which interferes with learning as expected in the usual public school situation, (2) the great majority of perceptually handicapped children have near-average, average, or above-average intelligence, (3) most perceptual handicaps are developmental in nature and the physical basis of the problem is outgrown in time, (4) unattended or mistreated perceptual disorders very often result in serious emotional problems that persist long after physical maturation has removed the basis of the original disorder, (5) with proper remediation perceptually handicapped children can be taught how to

learn effectively in spite of their disability and debilitating emotional problems can be avoided, (6) very few regular public school curricula have included provisions for perceptually handicapped learners, and (7) lack of provisions in regular public school curricula has led to the establishment of an inordinate number of special or segregated classes in private schools or by departments of special education in public schools.

The findings of this study clearly illustrate a need for extensive new public school curriculum development and research focused on perceptual differences and individualized instruction.

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By

George Emerson Monroe

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TABLE OF CONTENTS

CONTENTS--Continued

LIST OF APPENDICES

CHAPTER I

INTRODUCTION TO PERCEPTUAL HANDICAPS IN LEARNING

Statement of the problem.--Until the opening of the 19th century, it was believed that the smallest division of matter was a molecule. During the next 150 years ever more sophisticated research has disclosed that molecules are really groups of atoms; that atoms are groups of protons, neutrons, and electrons; and that protons, neutrons, and electrons are made up of at least 35 other separate and distinct particles. What was once thought to be indivisible was found to be composed of many different things.

Concerning the learning needs of children, educators have long been working at a level of understanding that compares to the time when knowledge of the molecule was the extent of understanding of the structure of matter.

But today it is recognized that what was once thought to be one kind of child is really an extremely wide variety of different kinds of children. There is now concrete physical evidence to show that the chances are impossibly against any two children ever being exactly alike. As a matter of fact, it is only difference that they absolutely have in common. And all of the so-called homogeneous classifications of learners really represent ranges

or segments of a continuum, based upon crude and arbitrary standards derived from observations of general symptomatic behaviors. In an article written for American Education Dr. Morvin Wirtz (1965), Director of the Office of Programs for Education of the Disadvantaged and Handicapped, U.S. Office of Education, acknowledged:

> . . . medical and psychiatric diagnosis have become more exact, so that many children are today recognized as handicapped who yesterday would have been called "behavior problems" [98].

The curricula of most public schools still provide only one limited form of educational experience, highly teacher centered and with common expectations for all, a form that offers maximum learning conditions to very few. The fact that many are able to utilize the curricula to some extent is more of a tribute to the adaptability of children than to the foresight of the schools. Differences in perception and adaptability to limited educational experiences are apparent by the fact that there is always a range of achievement in such learning situations. Far too many teachers even count on a range of responses to occur, taking this to represent effort put forth and making value judgments about the worth of individuals accordingly.

It is rarely recognized that much of this variety in achievement is due to the inevitability of varying kinds of responses by varying kinds of learners to a single kind of educational stimulation. And, more often than not, learners who are different enough so that they can't

"make-do" with the usual limited offerings are treated as negatively "deviant." Thompson (1964) described the status of "deviant" learners in public school classrooms:

> There are two large areas of childhood affliction that are not yet cared for to any sufficient extent by existing schools, services, or agencies. These are disorders of learning and behavior. Many of these difficulties spring from conditions rooted in the central nervous system or other physiological condition; many can be traced to grossly unfavorable environments; a majority represent some imponderable combination of constitutional misadventure and societal mismanagement [92].

Punishments, ranging from the subtle and psychological to open aggression, are the most widely applied "treatments." It is disturbing to reflect on how much different and better public education would be today if the ingenuity that has gone into punishing "deviant" learners had been applied to the development of improved programs to deal constructively with their natural differences.

> . . . our procedures in dealing with these youngsters are basically techniques for controlling rather than changing them. . . . The task of developing a program for "slow learners" depends upon our willingness to study them--to find out who they are as individuals. This requires a complete shift from our usual focus: first, our study must be of the individual as he is--not as he differs from a norm group (statistical or subjective) which we value; second, we must change our orientation from one of prediction to one of diagnosis in the basic meaning of thorough knowledge. Education has allowed itself to be seduced into the easy life of using information for predictive purposes, which brings with it a tendency to perceive youth in terms of limits of performance. Test scores, grades given by teachers, anecdotal records, and teacher's comments all abound in references to what is to be expected in the future as if the future must be basically a reproduction of the past. Diagnosis, on the one hand, is concerned with the present and, as it looks to the future, it looks with the attitude of how the future can be different

from the past, what interventions can be made that will bring about changes in John and Jane [67].

Purposes of the study.--The purposes of this study are to: (1) call attention to a group of learners, with average or above intelligence, whose perceptual apparatus differences (physically and organizationally) are sufficient to escape detection by all but the most sophisticated diagnostic techniques but prevent them from working as expected with the limited educational experiences usually offered in the public schools; (2) establish evidence of the correlation between these "perceptual handicaps" and I.Q.; (3) suggest means for identification and adequate diagnosis of students who may have perceptual handicaps; (4) propose some curriculum provisions needed in the public schools to deal effectively with perceptually handicapped learners; and (5) discuss ways that a professional staff can learn about perceptual handicaps and how to deal with them effectively.

Much of the literature dealing with perceptual handicaps is very recent and in the form of special publications by the researchers themselves. Some is in the form of conference and seminar reports. Some is in the form of papers duplicated by school systems for staff use. In defining the nature of perceptual handicaps this study will point out some very recent and very important changes in the basic philosophy regarding the perceptually handicapped child. And, as this story unfolds, it will be documented

by pertinent quotes from, and references to, the literature in the field. In order to establish the significance of perceptual handicaps in the problems of slow learners and the correlation between I.Q. and perceptual handicaps, the study will rely almost exclusively upon material from research and conference reports, case studies, and school records. In other words, this study will be built upon data produced by a wide variety of responsible persons and agencies. It is largely an effort to search out and coordinate evidence not generally available or previously brought together in this manner. Since the literature will necessarily be reviewed extensively throughout most of the study, no special or separate chapter will be devoted to a review of the literature.

It is further intended that this work might serve teachers as a handbook-type reference for learning about the nature of perceptual handicaps and how to deal with them effectively.

CHAPTER II

A WORKING DEFINITION OF PERCEPTUAL HANDICAPS

A foundation definition.--At this point in time there is a great variety of definitions of perceptual handicaps and related terms to choose from. Most of these grew out of the findings of individuals and groups working on the problem without much knowledge of what others were doing and finding. And, as such, they reflect the particular interests and specialized backgrounds of the persons who originated them. Researchers in the area of perceptual handicaps have represented many professions from education to neurology and psychiatry, but most of the fundamental information has been produced by persons working within or closely related to the medical schools.

Perception may be considered as the process of becoming aware of the environment through stimulation of the sensory apparatus and developing a coordinated view of that environment so that one can cope with it and make sense out of it. And it is now believed that the sense made out of the messages received by the brain from one's environment is different for each individual. The celebrated pioneer in the study of perceptual processes, Adelbert Ames, Jr., conducted thousands of experiments at

the Dartmouth and Hanover Institutes. In an exchange of letters with John Dewey (1949), he wrote of his conclusions regarding the individuality of perception:

> Among other things that these demonstrations apparently disclosed was that in essence every individual's perception was different than every other individual's perception, i.e., perception is specifically individually unique due to that person's unique point of view both in space and from his position in his unique history with his unique purposes, etc. [18].

For the purposes of this study, then, it should be understood that the perceptually handicapped learner is one of good intelligence whose perceptual processes are different enough so that he has difficulty in coping with and making "acceptable" sense out of the usual stimuli received from the usual educational environment.

A pathological beginning.--It is unfortunate that the limited evidence available to those who first began to offer definitions and establish terms relative to perceptual handicaps caused them to believe that all such problems were manifestations of brain injury. Most notable among these pioneers was Alfred A. Strauss. Dr. Strauss believed that many of the learning difficulties evidenced by children were of organic nature. He also felt that while these problems were physical in nature and presented obstacles to learning under ordinary circumstances, they did not rule out the possibility of worthy achievement under specially constructed circumstances. But, on the basis of a series of studies of children known to have

brain injuries, he concluded that any child who exhibited the same characteristic patterns of behavior and psychometric performance could be presumed to be brain injured.

When Strauss wrote of his view with Lehtinen (1947), and Kephart (1955), this theme was so convincingly presented that it has since dominated the thinking of most persons who have worked with perceptual handicaps. The two volumes produced by these authors became the basic handbooks for identifying and working with perceptually handicapped children [88,87].

Damage and injury concepts contested.--Though the books written by Strauss and associates are still among the best basic resources in the field, their brain-damage point of view has been questioned in recent times. Strother (1963), writing in a monograph produced for the National Society of Crippled Children and Adults, Inc., criticized:

> A presumption of brain injury based on such historical, clinical, psychometric or behavioral evidence may or may not be valid. Strauss' argument on this issue has been criticised in detail by Sarason (1949). In a large number of cases there is, at the present time, no way of determining conclusively whether children showing these so-called "signs" of brain injury are actually brain injured [89].

At the annual conference of the National Society for Crippled Children and Adults, held in Chicago, Lehtinen (1963) presented a description of the perceptually handicapped child that still included the concept of brain damage but gave recognition to other possibilities:

> Present day diagnostic techniques and clinical insights in the specialties of psychology, pediatric neurology, and encephalogy make it possible to identify the existence of a disturbed condition in the central nervous system which is adversely affecting the child's learning and adaptive behavior. Chief among the various causal explanations which have been proposed are that the central nervous system malfunction is the result of reproductive or neonatal casualty . . . that it is the reflection of a maturational lag . . . or that specific learning deficits are the result of genetic constitutional factors . . . [62].

Kephart (June, 1963) delivered an address at the First Annual Conference on Children with Minimal Brain Impairment, held at the University of Illinois, in which he, too, spoke of the perceptually handicapped with a little less emphasis on the concept of brain damage, using the word "minimal" in his only reference to it:

> In dealing with minimal brain injured children, it is frequently observed . . . [53].

And, in a recently published article on the subject (December, 1964), he wrote almost exclusively of <u>learning disabilities</u>, giving only the slightest attention to the pathological concept of <u>damage</u> when he stated:

> . . . in a significant percentage of children, accidents occur during the developmental period [52].

No one questions the fact that there are some children, an important number of them, who have some degree of brain injury. And it has been clinically demonstrated by studies of children known to have brain injuries that these can give rise to a variety of perceptual problems in learning. But more and more the accumulating evidence indicates that the category has been used too broadly.

Even if a fairly large sample of children who are known to have brain injuries exhibit behaviors symptomatic of perceptual problems in learning, this is not grounds for deducing that all children exhibiting behaviors symptomatic of perceptual problems in learning have brain injuries. Thompson (1964) expressed it this way:

> The term "brain injury" probably should be eliminated from general use. It is a medical term that is justified only after positive medical evidence. Frequently, the term is used loosely to refer to any condition of integrative disturbance in the central nervous system, or even more loosely to conditions of assumed organic involvement. The same objections apply to the term "brain damage." These terms may be used only in precise medical reference [92].

Difference as opposed to defective.--It appears that a child with perceptual problems who is labeled as "brain injured" or "brain damaged" may often be more handicapped by the label than by his learning problems. The probabilities are very high, also, that such a diagnosis is made on evidence far too inadequate to be considered valid. Still, the learning problems do exist. And there is strong evidence that a great many of them have some kind of physical (rather than emotional) origin. For instance, according to Clements (1963):

> Past and recent studies have indicated that as many as 70 per cent of the youngsters referred to child guidance clinics for whatever reason, can be shown to have mild neurologic differences which form the basic etiology of their difficulties. This leaves a relatively small percentage whose problem behavior can be explained on a purely psychogenic basis [22].

Notice that Clements used the concept of "difference" as opposed to those terms which, in essence, say "defective." It further seems that by this time he had found cause to visualize perceptual differences as at least three different kinds of differences when he referred to them as either:

> . . . mild organic impairment, or mild brain injury, or minimal brain dysfunction [22].

A period of reorganizing and redefining.--Myklebust (June, 1963), speaking at the First Annual Conference on Children with Minimal Brain Impairment, also took a step toward a less pathological view by acknowledging:

> The etiology might be disease and accidents, or it might be developmental [71].

And he proposed that the term psychoneurological learning disorders be used to designate the area of study that concerns itself with the behavioral disorders associated with brain dysfunctions in human beings. In a later article (December, 1964), he clearly took a stand against the damage point of view when he stated:

> Most workers have found the term brain damage inadequate. Some feel that it is unusually distressing to families and others recognize it in many instances as being inaccurate and hence a misnomer. Dysfunctions in the brain that cause learning disorders are not necessarily due to damage. They might be developmental or they might occur on an endogenous basis and be hereditary in nature [70].

In very recent times several other authors have begun to make some mention of the possibility that perceptual handicaps can be rooted in a different (but not

faulty) rate of physical and organizational development. Crowther (1963) claimed:

> . . . many of these problems are transitory. Why they should be transitory we don't know. It is as though these children were not damaged in the normal sense of damage, but have what I term cerebral dysmaturation [25].

Wepman (1963), also, delivered an address at the First Annual Conference on Children with Minimal Brain Impairment in which he proposed that more research be directed toward finding ways to distinguish between damage problems and developmental problems. But a summary of the discussion following his address indicates that his proposals were generally regarded as premature [96]. However, Frostig and Horne (1964) published a Teacher's Guide to the Frostig Program for the Development of Visual Perception in which full recognition was given to the developmental concept when they stated:

> It is often extremely difficult to discover the factors contributing to a child's disabilities in visual perception. The cause may be pathological in origin, such as minimal brain dysfunction, or it may be simply a lag in perceptual development without readily discernible causes [32].

A better working definition.--In 1964 Dr. Sam Clements became Project Director for a three-phase Project on Minimal Brain Dysfunction in Children. This project was co-sponsored by the National Institute for Neurological Disorders and Blindness and the National Society for Crippled Children and Adults, Inc. A report (1965) on Phase I of this project, edited by Dr. Clements, summarized:

> A semantogenic struggle has developed over the use of the term "brain damage" as either a diagnostic or descriptive designation. Historically, the terms "brain-crippled," "brain-injured," "brain-injured child," were selected by Strauss, Werner, Lehtinen, and others to describe and account for particular learning and behavioral aberrations in certain children. Other writers, in contributing to or expanding the concept and/or in describing the condition(s) used such transitional terms as "brain damage," "brain-damaged child," "brain dysfunction," "cerebral dysfunction," etc. With frequency of appearance in the literature serving as an index, the appellatives "brain damage," and "brain-damaged child," seem to be the most popular, insofar as usage is concerned. Although these two terms are the most widely employed, most writers agree that they are unfortunate in that they connote specific demonstrable brain alterations, are unclear, erroneous, too inclusive, and/or represent a "limited" Straussian view. . . . Despite criticism of these terms, it would appear that the authors using "minimal brain damage," or "minimal brain dysfunctions," have done so in an honest effort to characterize categories of children who are different in certain learning and behavioral patterns, but who on individually administered, comprehensive intellectual assessment, though indeed heterogeneous, nevertheless, achieve within the near normal, normal or above normal ranges of intellectual functioning . . . [20].

Dr. Clements and the project staff made a review of selected literature within which a total of 38 different terms were used to describe or distinguish the conditions of perceptual handicaps. These were placed into two groups: those which stress the organic aspect of the condition and those which emphasize a particular segment or consequence of the condition:

GROUP I

Association Deficit Pathology
Organic Brain Disease
Organic Brain Damage
Organic Brain Dysfunction
Minimal Brain Dysfunctions
Minimal Brain Damage
Diffuse Brain Damage

Neurophrenia
Organic Driveness
Cerebral Dysfunction
Organic Behavior Disorder
Choreiform Syndrome
Minor Brain Damage
Minimal Brain Injury
Minimal Cerebral Injury
Minimal Chronic Brain Syndromes
Minimal Cerebral Damage
Minimal Cerebral Palsy
Cerebral Dysynchronization Syndrome

GROUP II

Hyperkinetic Behavior Syndrome
Character Impulse Disorder
Hyperkinetic Impulse Disorder
Aggressive Behavior Disorder
Psychoneurological Learning Disorders
Hyperkinetic Syndrome
Dyslexia
Hyperexcitability Syndrome
Perceptual Cripple
Primary Reading Retardation
Specific Reading Disability
Clumsy Child Syndrome
Hypokinetic Syndrome
Perceptually Handicapped
Aphasoid Syndrome
Learning Disabilities
Conceptually Handicapped
Attention Disorders
Interjacent Child

> With few exceptions, the most striking omission throughout the review of the literature was the lack of attempts at a definition of the term(s) used or the condition discussed. Whereas there is a more than ample supply of terminology and characteristics, there is a shortage of interpretative elucidation [20].

The task of developing a more suitable definition that would incorporate recent evidence and be (at least tentatively) more universally acceptable as a generally descriptive classification became one of the main goals of the project. After much deliberation by the twelve members of the Task Force One Committee, such a definition was agreed

upon. It was called the Minimal Brain Dysfunction Syndrome and reads as follows:

> The diagnostic and descriptive categories included in the term minimal brain dysfunction syndrome refer to children of near average, average, or above average general intelligence with learning and/or certain behavioral abnormalities ranging from mild to severe, which are associated with subtle deviant function of the central nervous system. These may be characterized by various combinations of deficit in perception, conceptualization, language, memory, and control of attention, impulse, or motor function.
>
> Similar symptoms may or may not complicate the problems of children with cerebral palsy, epilepsy, mental retardation, blindness, or deafness.
>
> These aberrations may arise from genetic variations, bio-chemical irregularities, perinatal brain insults, illnesses or injuries sustained during the years critical for the development and maturation of the central nervous system or from unknown causes.
>
> The definition also allows for the possibility that early severe sensory deprivation could result in central nervous system alterations which may be permanent.
>
> During the school years, a variety of special learning disabilities is the most prominent manifestation of the condition which can be designated by this term.
>
> The group of symptoms included under the term minimal brain dysfunction stems from disorders which may manifest themselves in severe form as a variety of well recognized conditions. The child with minimal brain dysfunction may exhibit these minor symptoms in varying degree and in varying combinations [20].

The Task Force One Committee, while able to agree upon the foregoing definition, nevertheless realized that it must be tentative. It is offered as a working definition, subject to revision in the light of new evidence and/or new perspectives on present evidence. It can help to facilitate better communications on perceptual problems, even though it should not be used as more than a good organization of incomplete information.

But, it is puzzling to observe the next step taken by the committee. It seems that they have drawn conclusions far beyond the available supporting evidence, in much the same manner as when Strauss concluded that all children who exhibited certain characteristic behaviors and psychometric performance could be presumed to be brain injured. In the Classification Guide which the committee prepared to accompany and illustrate the definition of Brain Dysfunction Syndrome, they have designed what appear to be continuums of symptomatic behaviors:

Classification Guide

BRAIN DYSFUNCTION SYNDROMES

Minimal (Minor; Mild)	Major (Severe)
1. Impairment of fine movement or coordination.	1. Cerebral Palsies.
2. Fluctuations in learning and retention, especially in specific intellectual capabilities such as memory, language skills, etc., as related to subclinical seizures.	2. Epilepsies.
3. Specific and circumscribed perceptual and intellectual deficits.	3. Mental Subnormalities.
4. Deviations in attention, activity level, and impulse control.	4. Autism and other gross disorders of behavior.
5. Impairments of vision or hearing.	5. Blindness and deafness [20].

This design seems to leave little room for anything other than a pathological explanation for perceptual problems, in

spite of earlier acknowledgments that there might be other causes. There is little or no recognition in the Classification Guide of the possibility of slower than expected, but not necessarily defective, physical and organizational development. Yacorzynski (1965) cautioned about the gross assignment of perceptual problems to organic causes when he wrote:

> The term "organicity" is reserved for those clinical observations which lead to the conclusion that they are due to an organic condition of the brain involving higher mental processes. Sometimes the term is used to indicate that the symptoms are such as to make the individual act as if he had an organic involvement without an actual impairment being present. Such a broad meaning of the term loses its value because it may include any behavioral manifestation simulating that of an organic patient. In neurosis or a psychosis, many behavioral characteristics and performance on organic tests resemble those of a patient with an organic involvement of the brain. Such patients cannot be placed in the category of the organic unless data are available from other sources and previous observations indicating that such indeed is the case. It is best to reserve the term "organicity" for patients in whom organic involvement of the brain is indicated to be present [100].

And he further claimed:

> Organicity may be permanent or temporary [100].

If these differences of opinion among the professional researchers and theorists sometimes seem difficult for the educator to work with, it should be remembered that such is inevitable in any field where real growth is taking place. And, if one adopts an attitude of continuing investigation which includes caution toward the indiscriminate use of "labels," much positive use can be made of what there is to work with, however incomplete.

Incidence in the school population.--In this study the perceptually handicapped learner has been defined as one of good intelligence whose perceptual processes are different enough so that he has difficulty in coping with and making sense out of the usual stimuli received from the usual educational environment. Evidence has been offered that perceptually handicapped students can learn to learn effectively, very often to the point of meeting the usual expectations in regular classroom situations. As diagnostic techniques become more systematic and precise, it is seen that the incidence of perceptual handicaps is much greater than previously suspected. Professional estimates range from a minimum of 5 per cent to a maximum of 25 per cent of the total elementary school population. On the basis of findings from surveys Myklebust (1964) reported:

> . . . it seems that a minimum of 5 percent of school children have learning disorders as a result of disturbances of the brain; some authorities place the incidence even higher [71].

Bateman (1964) felt she was conservative in estimating:

> . . . that perhaps five percent to ten percent of the school population has severe enough reading problems to require special educational concern and provisions [7].

While President of the New York Association for Children with Learning Disabilities, Harrison (1965) wrote:

> Many of the advisors of our new international organization, Association for Children with Learning Disabilities, Inc., have stated that a minimum of 5% to 15% have some form of neurological damage that creates the problems in perception and behavior [38].

A considerably larger estimate was made by Frostig and Horne (1964):

> Our studies in various school systems show that approximately 20 to 25 per cent of children starting first grade lack the necessary perceptual maturity to succeed in beginning reading, arithmetic and writing without putting forth undue effort. Estimates of the number of school children in the United States who have reading difficulties beyond this point vary between 10 and 25 per cent, a considerable proportion of whom can be assumed to have continuing visual perceptual problems [32].

No comprehensive studies have yet been conducted to determine the actual incidence of perceptual handicaps among children of elementary school age. The estimates found in the literature are based upon personal experience and case record analyses. Myklebust has recently (1966) obtained a large grant to study the incidence of brain-injured children in the general population. No doubt the incidence of the various types of perceptual handicaps can be better estimated when data from this study are known. There is no question, however, that the incidence is highly significant.

Summary.--Perception may be thought of as the process of becoming aware of the environment through stimulation of the sensory apparatus and developing a coordinated view of that environment so that one can cope with it and make sense out of it. And the sense made out of the messages received by the brain from one's environment appears to be different for each individual. The perceptually handicapped learner has been defined as an individual

of good intelligence whose perceptual processes are different enough, whatever the reason, so that he cannot perform as expected with the usual forms of public school experience. Historically, the first persons to recognize that these were children who couldn't (rather than wouldn't) perform as expected presumed that they were all "brain injured," or "brain damaged." As diagnostic techniques improved and case study records were carefully kept and analyzed, it became apparent that the pathological concepts of "damage" and "injury" were not only unfortunate in connotation but without sufficient medical evidence to warrant their general use. Many researchers, working in relative isolation and without much knowledge of what others were doing and finding, developed definitions and terms to describe perceptual problems and their causes. As a result, the field became confusingly saturated with specialized terms, none of which seemed comprehensive enough for the job as more and more types and kinds of perceptual problems were discovered. What was once thought to be one kind or type of learning handicap has turned out to be a whole range of different kinds and types. And as diagnostic techniques improve, who knows how many other kinds and types will show up. Perhaps there will ultimately be as many as there are children. But this much seems certain even now: some of these problems may be due to injury, some may be due to genetic variations, some may be due to temporarily arrested development, and some may be due to

slower than expected rates of healthy physical and organizational development of the central nervous system. Whatever the causes, a significant number of children with good general intelligence have perceptual handicaps and need tailor-made experiences in order to be taught how to learn effectively. Considerable case study evidence is already available to support the conclusion that a child may have a perceptual handicap and yet have average or above-average intelligence, and that if his special needs are provided for he can learn to learn effectively, very often to the point of eventually holding his own in the regular classroom situation with its usual program. Perceptual problems affect a significant portion of the elementary school population, a minimum of 5 per cent and possibly as much as 25 per cent. As these children have average or above-average intelligence and can be taught to learn effectively, the present loss of competent manpower is serious for society and unnecessarily destructive for individuals.

CHAPTER III

RELATIONSHIP OF PERCEPTUAL HANDICAPS TO I.Q.

Some professional conclusions.--It is useful to compare a spectrum of professional opinions developed by those whose everyday practice and/or research activities keep them on the "firing line." These people are subject to the ethical norms of professional integrity and probing questions from colleagues. They generally strive to keep their pronouncements based on sound and substantial evidence lest they be discounted or taken lightly in the professional marketplace. This does not mean that they will always be right or that they have mastered the comprehensive view. But they are generally able to make positive contributions to understanding, especially when their views are utilized with an attitude of relativism and continuing investigation.

As early as 1947 considerable first-hand classroom experience, research activity, and broad acquaintance with the findings of others in the field prompted Strauss and Lehtinen to write:

> Behavior and learning, it is now beginning to be recognized, may be affected by minimal brain injuries without apparent lowering of intelligence level [88].

As was stated in Chapter II, these authors, along with Kephart, were pacesetters in the field. A great deal of useful work has been inspired by their insights. While accumulating evidence has now caused their concept of "brain damage" to be rejected by most professionals, their conclusions regarding the correlation between perceptual handicaps and I.Q. have been steadily gaining in credibility as new evidence is made available.

In a discussion of the correlation between perceptual handicaps and I.Q., based on her extensive experience with psychological testing, Spraings (1963) wrote:

> This is a group that varies widely. These children are to be found at all intelligence levels, from the mentally retarded to the gifted . . . [86].

That same year, in another situation, Crowther (1963) examined the evidence at his disposal and proposed a slightly different conclusion:

> These children . . . may have superior intelligence. . . . In theory, a child could be an Einstein mathematically and yet not read. And if you have not seen them, it may surprise some of you to know that there are many children who have a high overall intelligence, (as expressed on psychometric examination) yet who cannot read. Children who could go through [a] university with honors, yet can't read [25].

The Department of Special Education, Oakland County, Michigan (1961), made a most comprehensive study of the evidence concerning perceptual problems in learning. They made a survey of the literature and visited with Strauss, Lehtinen, Kephart, and several others. Subsequently, they established a Perceptual Development Program for the

Oakland County Schools with the following eligibility criteria:

> . . . children to be considered eligible for the program should . . . . Be of potentially normal intelligence or above [74].

And two years later, in a paper prepared for and published by the Fund for Perceptually Handicapped Children, Inc., Evanston, Illinois, Lehtinen (1963) had apparently firmed up her own convictions concerning perceptual handicaps and I.Q. when she described:

> . . . the child with perceptual handicaps in learning . . . overall intelligence quotient indicates ability within normal limits [64].

In very recent times the belief that most perceptually handicapped children have good basic intelligence has gained increasing acceptance. The published statements of Bryant [15], Shankweiler [85], Russell [83], and Myklebust [70] serve to illustrate this interpretation of the evidence. Bryant (1964) referred specifically to the perceptually handicapped children that have extreme difficulty in learning to recognize words. Such a condition of "word blindness" is commonly referred to as dyslexia, a term which:

> . . . implies a neurological dysfunctioning if only because of its similarity to the neurological condition alexia, which represents the loss of ability to read resulting from damage. . . . However, while alexia is a traumatic disruption of existing skills and memories, dyslexia represents a developmental inefficiency in functioning that handicaps learning. . . . Dyslexia is not a broad defect in general intelligence; I.Q.'s tend to be in the normal range and occasionally reflect very superior ability [15].

Shankweiler (1964) conducted a detailed study of twelve pupils with dyslexia. These children were given a clinical neuro-psychiatric examination and test for perception and skill. Their dyslexia was found to be associated with directional difficulties and trouble with drawing. In half of the cases, the confusion was with letters, and visual not acoustic in nature. On the basis of EEG examinations, it was assumed that half of the group had minimal brain damage. But none were considered below normal in intelligence [85]. Russell (1964) advanced a somewhat more comprehensive conclusion concerning I.Q. (interwoven with a hypothesis about curriculum) in which he stated:

> First and foremost, we feel that these children who appear to be completely incapable of achieving academically can learn in a highly satisfactory manner according to usual school standards in an environment that is highly structured, organized, and with the use of special materials and methods [83].

Myklebust (1964) made a very serious attempt to coordinate a wide spectrum of accumulating evidence, based on his own extensive research at Northwestern University and wide acquaintance with the work of other specialists in the field. He described the relationship of I.Q. to perceptual handicaps as follows:

> In fact, until recent years children presenting problems in learning and adjustment were categorized principally as being mentally retarded, sensorially impaired, or emotionally disturbed. Then workers became aware that there were children who though unable to learn to comprehend, speak, read, write, tell time, play, calculate, distinguish between right and left, and relate well to others, showed no basic deficiencies in intelligence, had no sensory impairments, and were not primarily emotionally disturbed. It was through a

> need to find a new, more appropriate, and meaningful classification for these children that the concept of minimal brain damage developed. . . . In the population with minimal brain damage, it is the fact of adequate motor, average to high intelligence, adequate hearing and vision, and adequate emotional adjustment together with a specific disability to learn that constitutes the basis for homogeneity [70].

The California Association for Neurologically Handicapped Children recently published a monograph (1965) in which the relationship of I.Q. to perceptual handicaps is discussed. Their experiences with many such children and the various experts and agencies that have worked with them led the editors to state the position of the association as follows:

> His appearance is normal, his intelligence is average or better, he receives love and attention; yet he is a menace to his neighbors, a disruptive influence in the regular classroom, an unsolved puzzle to his parents. He cannot perform. . . . He actually sees and hears things differently . . . [91].

Perhaps the most comprehensive "pulse feeling" by recognized experts in the field is represented in the report by Clements and associates (1966) on Phase I of the Project on Minimal Brain Dysfunction in Children, co-sponsored by the National Institute for Neurological Disorders:

> Despite criticism of these terms, it would appear that the authors using "minimal brain damage," or "minimal brain dysfunctions," have done so in an honest effort to characterize categories of children who are <u>different</u> in certain learning and behavioral patterns, but who on individually administered, comprehensive intellectual assessment, though indeed heterogeneous, nevertheless, achieve within the near normal, normal, or above normal ranges of intellectual functioning [20].

Some case study evidence.--Case study reports, alone, are cumbersome devices if the interest is in establishing trends and probabilities from which to derive basic principles. Used in conjunction with other types of evidence, they can help to illustrate the meaning of inanimate numbers. And they can assist greatly in the formation of perspectives.

The case studies presented here speak of the correlation between I.Q. and perceptual handicaps, but they will also give some insight as to what classroom behaviors are characteristic of the youngsters involved.

The first case study began in August, 1949. Jimmy had been unable to pass grade eight after two attempts, and he was referred for more comprehensive diagnostic testing. He was examined by a psychologist, a psychiatrist, and an eye specialist. They could find no reason for his failure. The psychologist pointed out that he had sufficient intelligence for university work but was unable to mobilize himself for academic work. He recommended that in view of this problem Jimmy should study farming or animal husbandry. This was a severe blow to his parents. They had always expected to send their only son to a university. As his father was a statistician and his mother a former school teacher, Jimmy's home had always been rich in cultural and intellectual stimulation. It was the kind of environment that generally fostered high scholarship. In

September Jimmy was re-enrolled in the same school and commenced visual-perceptual training. His parents soon noticed an improvement in concentration and reading ability. When the training was completed, four months later, Jimmy's teacher reported that he was keeping up with the class and making satisfactory grades in all subjects. After graduating from high school in 1953, he was accepted in a university [58].

Tommy Miller's problems illustrate another type of perceptual handicap. Even his mother felt that he was a spoiled brat. At seven years of age his behavior was such a constant source of irritation that it drove his normally calm mother to the point of a nervous breakdown. Evening meals were invariably the scene of screaming, kicking, tantrums before dessert was served. And the situation at school was little better. In kindergarten, Tommy was unable to do the things that other children were doing. He couldn't color within the lines of a figure or work with cut-outs. In first grade it was discovered that he had a normal reading ability, but he couldn't print letters or numbers properly. When moved into second grade, his problems increased. He seemed to have no conception of shapes like rectangles or squares. Because he couldn't fold a spelling sheet in half, as the teacher ordered, he tore it into bits and handed in the scraps. At first, it was thought that there was something psychiatrically wrong with Tommy, but nothing satisfactory came from several attempts

to diagnose his problem from this point of view. His brain-injury diagnosis was made in 1955, about the time that a pilot class for brain-injured children was initiated at P.S. 85 in the Bronx. He was one of the six "lucky" students to be placed in the class. After three years in this special situation, Tommy returned to normal classes and has received regular promotions ever since. In junior high school he played a saxophone in the band and took part in other extracurricular activities. He has made remarkable adjustments in spite of his handicap [60].

Still another case which illustrates the extreme variability of basic causes that may underlie perceptual handicaps was cited by Kirk (1963) when he described:

> . . . a child who was not manageable in a classroom because of extreme hyper-activity. He tested borderline in intelligence, could not learn to read, had short attention span and demonstrated other behavior characteristics ascribed to brain-injured children. No neurological signs were found to confirm the diagnosis of cerebral dysfunction. At the age of ten, he was found to have hypoglycemia, a condition opposite to diabetes, in which the sugar was being burned up too fast. When this diagnosis was made and sugar added to his diet, he became a model boy and learned in school at a rapid rate [57].

Different as these cases are, they do not begin to exhaust the possibilities. There is something unique about each individual case, even though some general symptomatic behaviors (such as hyperactivity) may be similar. Therefore, in order to have integrity, any remedial program must necessarily involve thorough diagnosis to pinpoint each individual's unique perceptual handicap.

Test results.--Grover and Allen (1962), writing of the results of screening procedures used in a Demonstration Project for Brain-Damaged Children in Ohio, had this to report on the correlation between perceptual handicaps and I.Q.:

> In the Columbus Public School System, a series of classes now numbering five, has been conducted for the past four years for children who are hyperactive, who have a short attention span and who exhibit considerable emotional lability. In the school year 1960-61, the children in these special classes were studied medically. All in all, sixty-one children were included in this study. Forty-eight of these sixty-one started in the research program and thirty-four continued in the program to its completion. In another, but concurrent study of private patients, fifty-eight more were seen in consultation, making a total of one hundred nineteen who were evaluated. Of this, a total of nine, and all of these were in the private group, were found to have primary problems of a psychiatric nature while the problems of the other one hundred ten were felt to be the reflection of some organic damage to the brain. In the school group, the ages ranged from six to fourteen. In the private study, the ages ranged from three and one-half to sixteen years. Of the school group, the I.Q.'s ranged from 80 to 129. In the private group, they ranged from 60 to 132 [37].

Lukens (1966), Coordinator of the Perceptual Development Program at Oakland County, Michigan, has reported on a study of the first 400 cases in the program files. These files were of children with severe learning problems who were referred for comprehensive diagnosis and possible placement in special rehabilitation classes. Each child was tested with a variety of instruments, including the WISC and Bender-Gestalt. Over 60 per cent of these children were judged by the screening committee to have potential for normal intelligence and specific disabilities

in perception. It was also the opinion of the committee that even those with lower scores were more intelligent than their general or average scores indicated and that I.Q. tests generally underestimated the real potential of children with perceptual problems [66].

Imperfect measuring techniques.--I.Q. tests have for some time been subject to mounting criticism by professional educators, psychologists, psychiatrists, and others. The criticism has not been so much against the concept of I.Q. testing. This is still regarded by most as a useful procedure. The clamor has been against assuming too much for what such testing can accurately determine. It is now known that I.Q. tests measure what the experts call "learned responses," not intelligence [90]. And it is a matter of record that under specially constructed circumstances the I.Q. score for a given person can be raised. For instance:

> After four years of doing without schooling, Negro junior high students in Virginia's Prince Edward County returned to class in September 1963. In the course of the next 18 months, the average I.Q. of those children rose 18 points. In St. Louis, a cultural enrichment program in slum schools raised the pupils' average I.Q. by 11.5 points in 4 years. . . . Testing, as a measurement of progress and aptitude, will always have its uses, but the old myth about the omnipotent I.Q. is finally fading [90].

Kessler (1965) also discounted the myth of I.Q. constancy:

> As measuring tools, I.Q. tests have much less reliability than tools of physical measurements. The probabilities of I.Q. changes over a period of time have been well researched. . . . One study showed that in a group of children first tested at six years and

> retested at twelve years, 50 per cent showed I.Q. changes of 8 points or more, with 25 per cent changing 13 points or more. The accumulation of such figures has completely destroyed the myth of I.Q. constancy. The changes are in part errors of measurement, and in part changes in the individual being tested [55].

Perhaps the most serious I.Q. evaluation errors have been made with the slow learners and non-learners in the school population. There is now reason to believe that many children in the public schools have been grossly misunderstood and mistreated on the basis of indiscriminate testing procedures. Spraings (1963) put it this way:

> First of all, the I.Q. obtained often does not describe with accuracy the specific problems causing the impairment in performance. . . . Secondly, often we see wide variability in verbal and performance areas, and thirdly, more important than the I.Q. obtained will be the areas of strengths and deficits revealed in the intratest variability . . . [86].

Strother (1963) criticized:

> On such tests as the Stanford-Binet, which yields a single I.Q. score based on the average level of performance on various kinds of tasks, the averaging of relatively good and relatively poor performances results in a score that provides very little useful information [89].

And Lampert (1965) made this startling comment:

> The diagnosis of mental retardation in non-institutionalized children is incorrect in 85 to 90 per cent of cases. . . . Most of these children have developmental disorders of learning and language function "which commonly occur without any impairment of intelligence." . . . Among learning and language disorders, Dr. Lampert included problems in reading that prevent word recognition and the comprehension of word meaning in printed, written, or spoken speech, and in expression.
>
> "The greatest single cause of misdiagnosis of mental retardation is failure to separate intelligence from language, speech, sensory, motor, and spatial modalities with respect to testing," he maintained. . . . The standard intelligence tests are "notoriously misleading"

> in the language disordered individual, he continued, in part because of associated problems in behavior, spatial relationships, and motor function. A typical behavior pattern in these children is characterized by hyperactivity, impulsivity, and distractibility, he said. . . .
>
> He offered . . . examples of the specificity of learning problems in the language-disordered child, related to specifically affected areas of brain function. For instance, the language disordered child may be able to read words, said Dr. Lampert, but not to comprehend what he reads or to hold a sequence of meaning. Or he may have a visual stimulus of a word but be unable to sound it out [27].

Specific entities in a gross configuration.--The I.Q. score is a gross configuration. It represents an averaging of performance scores on several different sub-tests. Even these sub-tests are known to involve more than one kind of ability to perform. According to Anastasi (1958):

> When an individual is classified on the basis of a single global score, such as an I.Q., there is still much that remains to be known about his abilities. Two persons attaining the same total score may present very different aptitude "profiles" when their performance along specific lines is analyzed . . . [and] the use of global scores may obscure or distort differences in separate abilities [4].

In a paper presented at the Twenty-fifth Anniversary Meeting of the Society for Research in Child Development (1959), Tyler and Jones maintained:

> . . . similarity in I.Q. does not mean similarity in subtest scores on the test from which an I.Q. is derived. In general, pupils do not score at similar levels on different parts of the test. For instance, for the boys in the Oakland Growth Study, the scores on each of the seven subtests of the Terman Group Test of Mental Ability were normalized with means of zero and standard deviations of 1.0. The standard deviations of the seven standardized, normalized scores for each boy were computed, and found to vary from .1 to more than

> 1.0. That is, we find considerable intraindividual variability in subtest scores of an intelligence test, and we find individual differences in the extent of this intraindividual variability [95].

Clements and Peters (1962) illustrated the growing awareness of the importance of the subtest performances within the gross I.Q. score when they wrote the following:

> We feel great errors are being made in the easy acceptance by psychologists, as well as psychiatrists, pediatricians and social workers of an overall I.Q. score which so often misrepresents the child's potential. Many children have been readily classified as mentally retarded or merely average on the basis of the composite WISC I.Q. when either the verbal or performance scores or some isolated subtest scores have been far above this [21].

Myklebust (1964) wrote an article to offer a new interpretation of available evidence concerning disabilities in learning and to propose a new terminology, "psychoneurological learning disorders," for comprehensive classification of such problems. In this article he wrote of the specificity of such learning problems, saying:

> The group is heterogeneous in that many types and degrees of learning disorders are present and in that many types and degrees of neurological disturbances are involved [70].

Thompson (1964) put it as follows:

> In some areas of development they are retarded; in others they are competent or even precocious. . . . If the child appears to be potentially within the average mental ability range but manifests persistent irregularities in learning and behavior, he may be considered for placement in a setting for the educationally handicapped. Sometimes the estimate of mental ability must be presumptive because the child may not be able to mobilize or exhibit his abilities. Psychological testing does not always clearly identify children with potential learning ability [92].

And Yacorzynski (1965) wrote:

> Another common characteristic is that the child may perform very well in some areas but be very deficient on other tasks. On intelligence tests, one may obtain an average or above average intelligence quotient, but the discrepancies among the items may range as much as 10 mental-age years. The child may, for example, pass some items at the 14 year level on the Stanford-Binet but fail some items at the 6 year level. The usual finding is that the visual motor perceptual tasks may suffer, whereas the verbal items may hold up fairly well [100].

Gallagher (1963) suggested that this new understanding of the specificity of sub-tests could be utilized in a positive way, that certain intelligence tests, or parts of them, could be very useful in planning for perceptually handicapped children:

> A more accurate title for "intelligence tests" [he said] would be "school aptitude tests" or "diagnostic tests." This describes what they can do and avoids the wholly unjustified inference that we have the genetic patterning of the child laid out before us in the form of an IQ score or pattern. . . . Another potentially more useful function for tests is to diagnose patterns of strengths and weaknesses in the development of an exceptional child. This information, if properly transmitted to the teacher, indicates where to begin a remedial program and what to include in the program. Again, just because a test gives a pretty profile of peaks or valleys doesn't mean that it is useful. This type of profile diagnosis must be validated through clinical practice and teaching experience, before it is accepted as valuable [33].

The case for variable development.--A human body of any size is made up of a fantastic number of separate and distinct particles, clinging together according to a genetic pattern and carrying on the functions of life. For instance: the number of gas molecules that occupy a volume of 22.4 liters, or about 6 U.S. gallons, at standard temperature and pressure is 600,000 billion billion [59].

And molecules, of course, are clusters of atoms that are clusters of still smaller particles. A genetic pattern which guides development is more like a blueprint or a template than an immutable source of creation. The particles that are available for construction according to the pattern vary with the particular host environment. Even if all the needed particles are available, there are still minute errors in such complex construction for a variety of physical reasons. In other words, it is well known that the patterns for genetic inheritances are not the same, but even if they were, the odds against any two developing persons ever being exactly alike are overwhelming. It seems that the only thing people absolutely have in common is difference. Both the design and the rate of construction are unique to the individual. If the various human organizations of mass and energy were distributed according to variation, they would form a bell-shaped distribution or a continuum as broad as the number of persons. The "normal," which is spoken of as if it were inherently the good, actually represents a <u>range</u> of differences which accounts for a little over 40 per cent of the total population. Even the people within the "normal" portion of the distribution curve are not alike. They can only be classified there because the criteria for classification are less than specific.

It must be seen that so-called "normal" development is not the only good development. The probabilities are

merely that a large portion of the population will develop at a rate that falls within the limits of the "normal" range. Some will develop more rapidly. Others will develop more slowly. Most of those who develop faster and slower than average will have potential for good health and intelligence if the environment is supportive.

There is growing professional opinion that many children who are perceptually handicapped at earlier age levels may not be after a certain age. This suggests that the "normal" expectations are actually in error for this child who is on a different timetable of developmental growth. Crowther (1963) claimed that the physical bases for perceptual handicaps were often temporary and not due to damage but what he terms "cerebral dysmaturation" [25]. Myklebust [70], Wepman [96], and Honzik [43] also gave attention to the concept of variable development when they addressed the First Annual Conference on Children with Minimal Brain Impairment (1963). Myklebust acknowledged that the etiology of learning disabilities might be developmental [70]. Wepman called for more research to find ways to distinguish between <u>damage</u> and <u>developmental</u> problems [96]. And Honzik directed attention to an age-sex linkage which suggested maturational differences:

> It is clear from the description of the sample that twice as many boys as girls are diagnosed or suspected of having neurological deficits in infancy. This sex difference appears worthy of a more detailed consideration than can be given in this paper. One of the complicating factors is a possible maturational difference such that the newborn male may be more like a premature

> and thus be more vulnerable and susceptible to injury. It is also possible that the male child's neurological development is slower than is true for the female, and that prematurity rather than impairment leads to the designation of "suspect" [43].

In an address before the section on neurology and psychology at the Southern Medical Association (December, 1965), Dr. Morris H. Lampert, a Texas neurologist and Instructor in Neurology at the University of Texas Southwestern Medical School, asserted the following:

> "The great majority of these difficulties are due to developmental or congenital disorders of specific brain function," he said, "almost invariably genetic in nature and seldom due to brain damage per se" [27].

Importance of early detection.--One of the major problems of perceptually handicapped children is "identity," because the average classroom is loaded with "normal" expectations. The average teacher expects certain behaviors and achievements at a given age and the materials on hand are mostly "graded" according to what is usually expected that children of an age level will be able to work with. Even the performances of classmates establish what is "acceptable."

The perceptually handicapped child is soon aware that there is a discrepancy between his performance and that of his peers. In ever so many ways the "feedback" from his environment constantly tells him that he is out-of-step. He can't do what most of the others in his group can do. The others win the teacher's approval while he senses or is sometimes told that he is unworthy. For lack

of understanding of his difference the teacher may suspect and sometimes openly accuse him of laziness, inattention, or willful wrong-doing.

According to Thompson (1964) this situation is often repeated and reinforced by the home:

> It is far too easy to fit in with or to extend the child's unhealthy modes: clowning, cheating, demanding, perseverating, compulsive dependency, sweetness, neatness, cleanliness, etc. These avenues, among many, are not recognized as defenses against the pain and anxiety and inadequacy that he feels [92].

Researchers at the Marianne Frostig School of Educational Therapy, Los Angeles, who developed and standardized a perceptual quotient, found that children in kindergarten and first grade with low P.Q. scores are likely to have difficulty in learning to read and to be poorly adjusted in school [75].

> The period of maximum visual perceptual development normally occurs between the ages of 3-1/2 and 7-1/2 years. . . . In a group of 373 kindergarten children, for example, we found a significant correlation between scores in the lowest quartile on the perceptual test and teacher ratings of maladjustment in the classroom. The same was true of a sampling of 277 first grade children. We have also found that in children with visual perceptual handicaps, the ability to pay attention is decreased [32].

Tompkins (1963) proposed a link between undetected perceptual handicaps and juvenile delinquency:

> In our highly literate, technological society, the child who cannot learn to read soon realizes that he is disinherited, economically as well as socially, and it is no surprise to discover, as the New York City Children's Court discovered in 1955, that seventy-six per cent of the juvenile delinquents whose cases came before the court were two or more years retarded in reading, and over half were retarded by five or more years [93].

Tompkins also proposed that adequate diagnosis and remedial help, soon enough, is very unlikely:

> One of the main obstacles in treating childhood reading disorders, apart from the grievous shortage of trained remedial teachers, has always been the fact that children rarely come for help until they have already experienced several years of humiliating failure in school. The public school system in New York (for instance) will not even refer a child for remedial help until after third grade, and by that time he has often developed severe neurotic symptoms . . . at the moment . . . the outlook for children with dyslexia is fairly discouraging. Some of them--whose disability is marginal or is mainly the result of delay in normal maturation--will always manage to pick up reading in the later grades, provided their frustration and anxiety in the meanwhile do not cause too many emotional obstacles. . . . The majority will go untreated, and will probably grow up believing that they are hopelessly dull-witted [93].

Certainly poor visual perception and the resultant inability to learn to read are major blocks to learning. But, as was pointed out earlier, there are many other types of perceptual handicaps. Whatever the basic cause or combination of causes, it is important to diagnose the difficulties and begin remedial measures as early as possible. Only in this way can the undesirable emotional complications that inevitably result from failure to learn be avoided.

In an interview for Psychiatric Progress, Laufer (1966) reported on neuropsychiatric evidence gleaned from twenty years of work with hyperkinetic children:

> When hyperkinetic impulse disorder is not recognized and treated as a distinct organically based entity, adverse reactions to a child's disruptive behavior are likely to culminate in serious emotional dysfunction. . . . Diencephalic dysfunction is capable of making the CNS [Central Nervous System] unduly sensitive to stimuli

> pouring in from both peripheral receptors and viscera. . . . As a consequence. . . . The child often creates turmoil . . . his aggressive motility may generate anxiety in parents. If they react with hostility and then guilt, the child's difficulties are increased. Among children whose parents are not sensitive to excessive activity, the problems begin in school, which imposes restrictions on movement and where the hyperkinetic's short attention span affects other children acutely. The problem is complicated in many children . . . by learning disabilities that stem from concomitant cortical involvement leading to visuomotor dysfunction. . . . Dysfunction usually clears up spontaneously as a child reaches maturity. . . . [but] When symptomatology has been of long duration at the onset of treatment . . . the child . . . may require not only medication and special schooling, but psychotherapy [6].

Summary.--At this point in time there is a lack of data from really comprehensive studies for drawing statistically sound conclusions about the relationship between perceptual handicaps and I.Q. However, there is sufficient evidence in the form of professional conclusions, case studies, and test records to allow for the formulation of a good working hypothesis. What evidence is available points to a very favorable correlation. The great majority of individuals with perceptual handicaps, including those who definitely have brain damage, are believed to have near-average, average, or above-average intelligence. The evidence for this is substantial enough that several general definitions have recently been constructed with statements to this effect included as a basic premise. Perceptual handicaps accompanied by lower than average I.Q. certainly appear to be exceptions to the rule. It is much more likely that a good general intelligence is present and can

function well, sometimes in a superior fashion, if certain unique provisions are made. And there is now good reason to suspect that the imperfect instruments and procedures for measuring I.Q. have led to labeling as retarded many children who only had learning problems, not a lack of intelligence. Further, it is believed by many professionals in the field that global I.Q. test scores provide very little useful information for the classroom teacher. It is proposed by some that careful analysis of sub-test scores can help to diagnose patterns of strengths and weaknesses in the development of children with perceptual differences. They caution, however, that even this type of "profile" diagnosis must be validated through clinical practice and teaching experience before it can be accepted as valuable. Accumulating evidence is more and more discounting the belief of widespread "damage" or "injury," in favor of differential development. A number of professionals in the field have proposed that some children who are considered to be perceptually handicapped in early grades are actually just growing in a healthy way on a slower timetable than most of their peers. It is how they are usually regarded when they don't match the "norms" that most often induces an emotional handicap that can outweigh and outlast the basic learning problem. Perhaps the most important problem of perceptually handicapped children is "identity." The children are soon aware of the discrepancy between their own performance and what is "normally"

expected. For lack of understanding of such differences teachers may suspect and sometimes openly accuse perceptually handicapped children of laziness, inattention, or willful wrongdoing. The humiliation of constant failure and negative treatment by "significant others" soon induces neurotic symptoms which generally get worse as time goes along. Yet the basic cause or causes are unknown and unmanageable by the child. He cannot perform as expected. Neither can the teacher do much about it without adequate diagnosis so that she can devise remedial help in terms of the specific and unique learning problems involved. Aside from the fact that the democratic philosophy of valuing individuals calls for action, now that the problem is visible, the magnitude of the problem and its cost to the rest of society in leaving it unattended are far too great to ignore. The resultant neurotic behavior and stunted personalities are also a serious danger for society.

CHAPTER IV

DIAGNOSING PERCEPTUAL HANDICAPS

Behavioral symptoms to watch for.--Writing for ESCALON, INCORPORATED, a non-profit organization formed in 1959 which operates clinic schools for children with learning and behavior problems, Thompson (1964) proposed:

> Classroom teachers can readily nominate most (perceptually handicapped) children by their behavior. They are to be found in almost every classroom. Learning and behavior problems exhibit themselves in many ways: inattention, hyperactivity, disobedience, defiance, poor grades, refusal to complete work, daydreaming, annoyance to other children, and agitation or exclusion on the playground. The teacher can refer to the school counselor or psychologist those children who are not adapting to or profiting from regular classroom procedures. In turn, the psychologist can investigate the condition in detail: background, educational history, academic achievement, medical evidence, family circumstances; and mental, emotional, and motor functioning. If in any of these areas of examination the child performs within or above the average range of ability, we may suppose that there are potential strengths within his make-up that might properly be exploited toward rendering him an adequately functioning child [92].

Friedman (1965) offered a list of characteristic behavioral symptoms (see Appendix I) along with a word of caution to observing teachers:

> As a classroom teacher, you may note some of the following behavior characteristics often seen in these . . . children. The observation of some of the following should not lead you to conclude on your own that this is a . . . [perceptually handicapped] . . . child but rather these should serve as an alert so that you may refer this child to your school psychologist for further evaluation [31].

Clements and his associates (1965) conducted a search for symptoms of perceptual handicaps by reviewing over 100 pieces of literature. They found a total of 320 symptoms which were attributed to, or said to be characteristic of, the disorder(s). Trying to eliminate overlap and duplication, and group the rest of the symptoms into meaningful patterns, they developed a listing of Preliminary "Signs and Symptoms" Categories (see Appendix II).

Recording observations.--In order to do the most good for the child involved, diagnosis must be as accurate as possible at all stages. Classroom observations are the foundation upon which other diagnostic activities will be built. Recording observations at the time they are made reduces error and distortion in basic information about the child's behavior.

It is also helpful to make observations in both qualitative and quantitative terms, noting what specific behavior occurred and how much of it. This is often difficult for the classroom teacher since she has a lack of uninterrupted time for classifying what is seen and getting it recorded. As a result of this situation, Burks (1965) constructed a Behavior Rating Scale (see page 46) for use by classroom teachers.

> It [the scale] was designed specifically to gain an estimate of that behavior which might spring, in part or whole, from organic pathology of the central nervous system [17].

Though many would think the diagnostic claims for this

BEHAVIOR RATING SCALE [17]

(Devised by Harold F. Burks, Ph.D.)

Name of Child _____ Age_____ Grade_____

Teacher_____ School_____ Date_____

Please rate each and every statement by putting an X in the appropriate square after the statement. The squares are numbered from 1 to 5 and represent the degree to which you have noticed the described behavior. The bases for making a judgment are given below:

(1) You have **not** noticed this behavior **at all.**
(2) You have noticed the behavior to a **slight** degree.
(3) You have noticed the behavior to a **considerable** degree.
(4) You have noticed the behavior to an **uncomfortable** (large) degree.
(5) You have noticed the behavior to a **very large** degree.

	Rating Scale				
	(1)	(2)	(3)	(4)	(5)
1. Seemingly not affected by extremes of heat or cold					
2. Poor coordination in large muscle activities (games, etc.)					
3. Confusion in spelling and writing (jumbled)					
4. Inclined to become confused in number processes: gives illogical responses					
5. Reading is poor					
6. Hyperactive and restless					
7. Behavior goes in cycles					
8. Quality of work may vary from day to day					
9. Daydreaming alternating with hyperactivity					
10. Excessively meticulous, exacting, formalistic or pedantic					
11. Erratic, flighty or scattered behavior					
12. Lacks a variety of responses, repeats himself in many situations					
13. Easily distracted, lacks continuity of effort and perseverance					
14. Cries often and easily					
15. Explosive and unpredictable behavior					
16. Often more confused by punishment					
17. Upset by changes in routine					
18. Confused in following directions					
19. Tends to be destructive, especially of the work of others					
20. Demands much attention					
21. Many evidences of stubborn uncooperative behavior					
22. Often withdraws quickly from group activities; prefers to work by self					
23. Cannot seem to control self (will speak out or jump out of seat, etc.)					
24. Constant difficulty with other children and or adults (apparently purposeless)					
25. Shallow feeling for others					
26. Seems generally unhappy					
27. Confused and apprehensive about rightness of response; indecisive					
28. Often tells bizzare stories					
29. Classroom comments are often "off the track" or peculiar					
30. Difficulty in reasoning things out logically with others					

instrument presumptuous, they would nevertheless applaud its systematic approach to classroom observation. For as Capobianco (1964) pointed out:

> Rating scales . . . force an orderly account of the children's behavior. These instruments provide insurance against the tendency, on the part of many observers, to record only the negative aspects of behavior [19].

Many such schemes are possible for recording observational data. Experienced teachers should be encouraged to add categories and/or synthesize their own procedures. But the objectives should always be the same: (1) accuracy, (2) clarity, and (3) availability. All three are important for adequate diagnosis and, ultimately, for proper help for the child involved.

Friedman (1965) proposed that after making thorough classroom observations the next step should be:

> . . . to call in the parents and discuss what you see in the classroom that suggests to you that their child is having some learning problems. Perhaps they can tell you something about this child's behavior at home that makes him a little different from their other children. You should attempt to get as much information as possible about the nature of pregnancy, birth, medical and developmental history so that any injuries which the child has sustained will be noted, and any unusual patterning in his development will be noted, also. This, in particular, in terms of the age of walking, onset of speech and toilet training. Your special education department probably has a list to serve as a guide line for this conference as these are very important items in helping to make a differential diagnosis. Remember, at this point the child has not yet been diagnosed, and while you may suspect what the trouble is, you should be wary of suggesting what you have in mind before the results of a neurological examination and psychological testing come through. A faulty diagnosis can do a great deal of harm [31].

The teacher's limitations in diagnosis.--From an educational point of view, the objective of diagnosis is to lay a foundation for the planning of an educational program that will develop the child's abilities and help him to compensate for his disabilities. What is needed as a basis for educational planning is a systematic inventory of the child's level of development in perceptual and motor functions, in communication, in concept formation, and in social interaction [89].

It has been pointed out that the classroom teacher can make important, even crucial, observations. She can gather information from the parents and counsel with them. She can also add the results of psychometric testing to the cumulative records. However, it must be emphasized that this does not constitute diagnosis, and the teacher alone cannot make an adequate diagnosis. Adequate diagnosis of perceptual problems calls for specialized skills and facilities far beyond the scope of the teacher and the classroom situation. This is not to belittle the classroom teacher. In fact, the positive use of adequate diagnosis information will ultimately rest upon the skills of the teacher in interpreting such information into appropriate learning experiences. But such skill is in vain if the basic information about the child's problem is faulty or incomplete.

A competent classroom teacher is a wonderfully flexible and inventive person. The chances are strong that if furnished with accurate information about a child's specific learning problem she will create ways to help him learn how to learn. As Homans has put it:

> If the analysis is adequate, a way of dealing with the situation will suggest itself [42].

This does not necessarily mean that the teacher will create what is needed "out of thin air," although her background of experience is often good for a great deal of productive "conjuring." Rather it means that the good teacher is always engaged in "research" on problems that she recognizes as important. She is always looking, reading, asking, and putting together in terms of the specific thing she wants to deal with. If one creation falls short of her goal, she quickly reorganizes and tries something else. This methodology is somewhat like hunting for four-leaf clovers--it helps to look where clover grows. Adequate diagnosis can "put the teacher in a clover patch" that is impossible to find without expert guidance and specially constructed maps. Reed (1963), however, warns that playing the role of diagnostician can become "heady" stuff and points out:

> [An] . . . example of pseudo-sophistication can be seen in the concept of "minimal brain damage." This concept would seem to imply that neurological criteria exist which will reliably differentiate groups of children on the basis of the extent of brain lesions. There is the additional implication that extent of brain lesion is an important determinant of intelligence and learning ability. In actual practice, children with "minimal

> brain damage" are generally identified on the basis of their behavior in a school situation with little regard for outside criterion information [79].

A statement by Kephart (1963) illustrated the inherent danger of incomplete diagnosis:

> Particularly with the minimally damaged child, it seems possible that much of our difficulty in teaching is due to the fact that we have started too high and not laid an adequate foundation for the learnings which we are requiring [53].

Working with the parents.--After a consultation and gleaning of information from the parents, the teacher should advise that the next positive step is for the parents to have their child tested by a school psychologist to gain further important evidence of the specific nature of the problem. It is a good thing to work closely with the parents throughout the diagnosis because dealing effectively with perceptual handicaps is a job best done in cooperation with the home. If the teacher needs highly specialized information in order to provide the right environment for the child, it stands to reason that the parents need it too. Besides, it may be possible to obtain certain diagnostic information only through full cooperation of the parents. If there is not a school psychologist, for instance, it may be necessary to arrange with the parents for the use of facilities outside the school system, at a university clinic or at the office of a consulting psychologist.

The psychometric examination.--The minimal psychological test battery that a teacher should request for a child is the complete Wechsler Intelligence Scale for Children (WISC), the Bender Visual Motor Gestalt, and a standardized reading test such as Gray's or Gates' [21]. The over-all I.Q. score as measured by the WISC is not as useful, according to Clements and Peters (1962), in diagnosing specific perceptual problems as is the sub-test pattern of performance:

> Thus far we have isolated 3 principal patterns. The most common pattern is scatter in either or both the Verbal and Performance Scales (WISC Pattern I). Low scores (relative to others) most frequently occur in Arithmetic and Digit Span in the Verbal Scale, and Block Design, Object Assembly, Coding, and Mazes in the Performance Scale. . . . The second most frequent (WISC) pattern (WISC Pattern II) is that in which the Verbal I.Q. is 15 to 40 points higher than the Performance I.Q. . . . The third and least frequent pattern (WISC Pattern III) is the reverse of WISC Pattern II, i.e., the Performance I.Q. is 10 to 30 points higher than the Verbal I.Q. Such a child has difficulty in expressing himself verbally. . . . In our experience, the child with WISC Pattern III invariably has dyslexia.
>
> The Bender Visual Motor Gestalt is here used as it was intended, that is as a measure of perception and visual motor coordination. . . . We have found that the failure to obtain a Bender-Gestalt has sometimes led to a wrong diagnosis and treatment plan. . . . We believe that it or an equivalent measure should never be omitted. . . . Gray's Oral Reading Paragraphs are preferred as a measure of sight reading because of their simplicity of administration and content of the paragraphs [21].

Among other instruments for measuring visual perceptual functions are the Advanced Tests of Visual Perception by Getman and Kephart (1953) and Kephart's Perceptual Survey Rating Scale (1960). In the area of language functions,

Kirk's Illinois Test of Psycholinguistic Abilities (1961) provides a systematic analysis of the basic aspects of language [89].

Thompson (1964) also suggests using the WISC and Bender-Gestalt but emphasizes the limitations of such devices:

> There are many tests now in existence that help to identify visual-perceptual impairment. Among the better known are certain subtests on the WISC and the Bender-Gestalt Test. It seems reasonable to suppose that if children give evidence of average or above-average mental ability in several areas but are unable to read adequately or to discriminate or reproduce form at a level commensurate with other aspects of their development, some kind of visual-perceptual impairment exists, especially if it has been determined that vision is not involved.
>
> It has been widely assumed that children who are not able to read and who give evidence of inability to discriminate have visual problems. Experience has shown that most of these difficulties have little if anything to do with vision as a function of the eye. Although many . . . [perceptually handicapped] . . . children do have vision problems, in themselves these problems seldom seem to stand in the way of learning to read or to interpret visual material accurately. Most poor readers appear to have equal facility with good readers in the mechanics of optic perception, but poor readers have difficulty patterning such perceptions, and in differentiating figure-ground and right-left discrimination. What may be the case is that eye defect is only one of several signs of basic impairment [92].

The medical examination.--A complete medical examination is also needed. And here, if not before, the parents will be vitally involved. If at all possible, the parents should arrange for and take the child to have the medical exam. The parents should explain to the doctor that a learning problem is the reason for the examination. They should give as much information as possible to assist

the doctor in searching for related medical symptoms and identifying a particular symptom pattern or syndrome. According to Grover and Allen (1962):

> This syndrome is not often recognized by the family physician, the pediatrician or the neurologist. This is because the patient's parents are so obsessed with the patient's emotional problems that they often omit or minimize the historical information which would suggest the organic character of the child's problem. Usually, unless this is drawn out of them, the examiner may totally miss the true significance of the difficulty [37].

No good reason is seen why duplicates of the teacher's observations, information gleaned by the teacher in consultation with the parents, and reports of the psychological evaluation should not be made available to the parents when they take the child for medical examination. This would give the doctor something substantial to go on and the parents would be facilitated in acting constructively on behalf of the child.

Multi-disciplinary evaluation.--Many professionals concerned with perceptual problems in learning have agreed that the diagnostic steps thus far discussed are indispensable. At best they represent a minimum of systematic information-gathering necessary for intelligent educational planning for an individual. Most professionals in the field today also agree with the concept of multi-disciplinary diagnosis expressed by Jones (1963) at the First Annual Meeting of the Conference on Exploration into the problems of Perceptually Handicapped Children:

> Children with perceptual difficulties are too complex in their behavior and emotional reactions, too variant in their abilities and skills for anyone to ever think that diagnosis or prognosis could be a simple matter. The very process requires the evaluation and discussion of various groups of professional people, to say nothing of the information which might be, and must be, collected from the parents and those within the child's home, in his school, and in his community. After this big job comes the job of remediation, the job that is done in the classroom, the job that must be done by the teacher to evaluate the abilities of the child and to establish an environment in which the child can learn [50].

This belief was reiterated by Lehtinen (1963) in another address at the same conference:

> The perceptually handicapped child's varying needs are there too, yet he is all too often being treated segmentally by the different disciplines involved without a coherent, overall treatment plan. . . . The most secure results have always been attained in these situations in which education, psychology, social work and medicine, not to mention the parent, have recognized that this is a mutual problem and that while each can contribute from its unique competencies to the understanding of the whole, the most effective treatment develops from their integrated efforts [63].

Gathering, classifying, and coordinating various kinds of pertinent information about a child set the stage for adequate diagnosis. Next should come a comprehensive evaluation by a multi-disciplinary team. By far the best situation for such evaluation is the special clinic which is part of, or working closely with, a university medical center. Such a clinic offers the insights borne of much experience with such problems as well as access to a wide array of technical equipment such as the electroencephalograph. Involved in continuing research, clinic personnel

are often alert to "soft" signs and subtle deviations that might otherwise go unnoticed.

It has been experienced that while a number of such clinics are available and willing to conduct such diagnoses upon request there has been a problem of visibility to the public. There has been a serious lack of coordination between such facilities and the guidance and counseling facilities in the same community. Part of this lack of coordination may be due to the unfortunate use of pathological labels, such as brain "damage" or "injury" in describing clinic facilities and reporting research done there. Perhaps under such pathological labels the clinic facilities have appeared to be unsuitable for diagnosis of "mere learning problems."

Several parent groups have recently founded organizations to assist in distributing information about perceptual handicaps. Some of these groups are also working to coordinate or develop facilities for adequate diagnosis and treatment. Two notable examples are The Fund for Perceptually Handicapped Children, Inc. (Evanston, Illinois) and the California Association for Neurologically Handicapped Children. And the Association for Children with Learning Disabilities, Inc. reports that it now has become an international organization for such purposes.

Until such time as there are sufficient clinics for diagnosis of perceptual handicaps, the coordination of local agencies and facilities seems the best alternative.

Various school districts in Oakland County, Michigan, for instance, have established a multi-disciplinary screening committee to evaluate diagnostic evidence. Included on such committees are the classroom teacher, a school psychologist, a social worker, the County Director of the Perceptual Development Program, and sometimes the family doctor or other medical specialists with an interest in the proceedings.

The Oakland County Schools are among the pioneers in developing programs for perceptually handicapped children. Their level of organization for such activities is far beyond that found in most communities. It was recently observed, for instance, that a large school system in an upper middle class community had to share only one county-level psychologist with several other school systems. This meant up to a year and a half delay on referrals for psychological testing. This school system was within five miles of a Big Ten University, and some of the parents were teachers in the College of Education there.

However, observations were made in an underprivileged community where there was no psychologist or even cumulative records for the children. But even so it was possible to locate a diagnostic clinic at a university some twenty miles away, and it was possible to convince the director of the clinic that conducting diagnosis on a number of the most severely handicapped students in the school would be a valuable experience for clinic interns and give

some needy children a real break. The school board furnished a bus, and the teacher, with the assistance of parents, took the children to the clinic on Saturdays. It certainly wasn't the best situation, and many of the children with milder handicaps were never examined. The story is offered to illustrate that the multi-disciplinary approach, which is so vital to adequate diagnosis, can occur even where it never has before, even under adverse local conditions.

It is possible and seems likely that as the problem (area) of perceptual handicaps is better understood and the clinic services become known to the public, taking children to comprehensive clinics for diagnosis will eventually become the rule rather than the exception. That day will be a great day in education, provided the schools can learn how to develop and utilize methodologies as adequate as the diagnostic information they will get.

Summary.--Classroom teachers can readily identify most perceptually handicapped children by their behavior. They can make systematic observations and record these for thorough evaluation. They can visit with the parents and obtain important information about the home environment and the child's developmental history. But teachers cannot make an adequate diagnosis. Adequate diagnosis of perceptual handicaps calls for specialized skills and facilities far beyond the scope of the teacher and the classroom

situation. Thorough medical and psychometric exams are needed. The school should cooperate with and assist the parents in obtaining diagnosis. If teachers need highly specialized information in order to plan effectively for an individual child, the parents need it too. Perceptual problems are not often recognized by individual doctors unless the learning problem and its pertinent details are discussed with him before the medical exam. For this reason the school needs to assist the parents in providing the doctor with a clear and accurate accounting of the information gathered by the teacher. Classroom observations, home consultations, psychological testing, and medical exams set the stage for adequate diagnosis. Evaluation of all this information is best done by a multi-disciplinary team, preferably at a comprehensive clinic which is part of, or working closely with, a university medical center. Some school systems have established multi-disciplinary screening committees made up of various professionals in the community. While this may be the only alternative now available in some areas of the country, parent groups are rapidly organizing to distribute information and develop better facilities. It seems very likely that as the problem of perceptual handicaps is better understood by society-at-large and clinic services become visible, most children with learning problems will be taken to such clinics for comprehensive diagnosis. The challenge to education is to develop and utilize methodologies as adequate as the

diagnostic information that will be obtained (for an outline of steps to take in adequate diagnosis, see Appendix III).

CHAPTER V

EFFECTIVE LEARNING EXPERIENCES FOR THE P.H. CHILD

The residential school.--It must be emphasized that very few children need to be placed in a residential school situation. Probably less than 2 per cent of the total elementary school-age population have perceptual handicaps severe enough to warrant special (segregated) classes of any type. And, if at all possible, even these special classes should be an integral part of the public school programs.

But some communities do not have adequate facilities, public or private, for dealing with perceptually handicapped children. In fact, most public school systems have not yet recognized perceptual problems in learning as legitimate concerns for curriculum consideration. When parents in such communities have been able to secure diagnostic services and have found that their child needed individualized educational experiences not locally available, the residential school has offered a way to obtain adequate education for the child without uprooting the whole family.

In some cases the emotional problems that have developed in the home concerning the perceptually handicapped

child are severe enough, and so unmanageable under the circumstances, that residential placement is the only real hope for the family and/or the child.

The Cove School at Racine, Wisconsin, is an outstanding example of a residential school for children with perceptual handicaps. The students at this school come from all over the nation. It represents one type of program resource that can be utilized when the need is great and the local facilities are unsatisfactory. It has been estimated that less than .1 per cent of the total elementary school-age population has need for such residential placement.

The special day school.--In some communities special day schools are available for children who are unable to make satisfactory progress within one of the existing public school programs. The number of children of elementary school age who need special class placement of some type has been estimated at no more than 2 per cent. This does not mean that the special day school is being promoted as the most satisfactory answer for these children. In fact, many respected professionals strongly suggest that it is not. It seems that special day schools have developed where adequate action by a local school system was missing. They have been private answers to problems unrecognized and/or unsolved by the public institutions.

The Cove School in Evanston, Illinois, founded by the late Alfred A. Strauss, and now under the direction of Dr. Laura Lehtinen, is an example of the special day school. It is affiliated with the Cove (residential) School in Racine, Wisconsin. The Evanston (Cove) school was in existence long before the local public school system became aware of the need for special curricula for perceptually handicapped children. Once the public school system did recognize the need for special provisions for some students, they arranged to work in cooperation with the Cove School rather than to duplicate these facilities at public expense. In other words, a previously existing private school now functions as an integral part of the total public school program for perceptually handicapped children.

The Tulsa Education Foundation School of Tulsa, Oklahoma, is another example of the special day school. It was established in 1957, to provide:

> . . . educational facilities for children with normal or above intelligence who are unable to progress in a regular school program as a result of a learning disability. . . . The primary aim . . . is to help the child overcome his learning disability so that he may be successfully integrated into regular public school programs. The Foundation School works cooperatively with the Tulsa Public Schools. . . . A total public school program is desirable but hampered . . . [under present circumstances] [48].

Segregated classes.--Several public school systems have established special classes within the regular school situation. These classes are most often under the direction of departments of special education. For example, The

Perceptual Development Program of the Oakland County, Michigan, Schools includes such special or segregated classes and is administered by the County Department of Special Education. The classrooms used for the program are strategically located in several elementary school buildings so students can identify with the public school and be integrated into normal classroom situations as much and as soon as possible. And the records at Oakland County show that rehabilitation to the regular classroom situation is accomplished by most students after two or three years of "learning how to learn" in this special program.

The residential school, the special day school, and the special class within the public school are basically the same kind of special provision. They may be private, semi-private, or public, but objectives and methods are very much alike and approach the ideal in individualizing education. The number of students in such a classroom is usually held to about eight. There is often a full-time teacher-aide. A new class is usually started with only one or two students, the teacher taking time to know each student thoroughly and making sure they are fully established before others are brought in. This process is repeated until the full compliment of eight is enrolled. A variety of materials and methods are creatively utilized to meet each individual's special needs, many of these resembling or actually stemming from Montessori materials and methods. But by far the most potent resource in any case is the

creative teacher who: (1) gets to know the individual student intimately as a person and uses the comprehensive diagnosis information as a basis for finding out just where and how a child's learning is blocked, (2) has a wide background of educational theory and methods to draw from--including special theories and methods for working with perceptually handicapped children, and (3) can innovate ways to help a child learn in spite of whatever handicaps he may have.

The primary aim of most special classes is rehabilitation and eventual return to the regular classroom. This usually involves considerable cooperation with the regular classroom teacher and is best accomplished a little at a time, increasing involvement as the child is able to cope with it. Fundamental skills in language arts and calculation are most easily identified as the subject-content of special classes for the perceptually handicapped. Physical therapy-orientation experiences are provided, with some schools having a professional therapist on the permanent staff. But the overwhelming emphasis is on personal organization for increased independence in learning.

The itinerant teacher.--It has already been pointed out that only about 2 per cent of elementary school-age children need to be placed in special (segregated) classes of any type. Yet, up to 25 per cent (see Chapter II, pages 18-19) of this age group are believed to have some degree

of perceptual handicap that interferes with normal (expected) learning under the usual classroom circumstances. This means that the regular public school curricula should make individualized provisions for up to 23 per cent of the elementary school-age population. Providing a special teacher who meets with certain children for portions of the school day is one method used to deal with those whose learning problems are felt to need more special attention than the regular classroom teacher is able to provide yet are not severe enough to warrant special class placement.

The Public Schools of Evanston, Illinois, employ such a plan. Small special rooms are provided in elementary school buildings--much like the usual speech-therapy facilities. One, two, or three students at a time, depending on similarity of needs and personal compatibility with each other, leave the regular classroom to work for an hour or so in the special room. As with the special (completely segregated) classes mentioned previously, program emphasis is on fundamental skills of language and calculation, and increased independence in learning. The special teacher in this kind of program works cooperatively with the regular classroom teacher, reporting on individual needs and progress and acting as a resource consultant. In some cases the special teacher works closely with the physical education teacher(s) to plan therapy-orientation experiences that can be provided for individuals in P.E. classes.

Individualizing classroom experiences.--Whatever has been learned from educational research, it is certainly clear that no single method of instruction is best for all children:

> Although there are many ways to individualize teaching, we must be certain that whatever we do is based on the premise that each child is unique. Not only does he learn at his own rate but he learns in his own special way. Since his background is different from that of any other child, he will approach learning in a manner unique for him [78].

A good classroom should have a number of activity centers and some clear, easy to follow, routines for their basic use. Beginning days of school should be used for orientation to these centers and routines. This makes possible a variety of forms of grouping for independent activity after whole class discussions and planning sessions have taken place. Success with this approach lies in the ability of the teacher to set children at tasks so absorbing that she may be free to deal with the always abundant instructional problems of individuals. With most children working quietly by themselves, the teacher can then work closely with small groups of children having similar problems or with a single child (for six flexible grouping techniques, see Appendix IV). This type of grouping procedure sets the stage and provides the opportunity for individualized education. It does not, however, guarantee it.

> Subdividing students in a classroom into smaller groups has no virtues in and of itself. It makes sense only when a particular grouping arrangement facilitates the attainment of a specific educational goal. Effective

> use of grouping requires the teacher to be clear as to purpose. . . . Whatever the size of the group, the individual learner is the focal point. The reason for placing him in a particular subgroup of a particular size is to help him with some aspect of his learning. In this matter of classroom grouping, the future will probably witness less attention to achievement as the within-class pattern of grouping, less and less conformity in the design of class groups, and more provision for individual learners to proceed at their own tasks at their own rates of speed [84].

The classroom teacher who has suitably educated and organized her total class of 25 to 30 students, so that she is essentially able to function for a time as a special teacher with one to eight students, must then adapt and utilize the methods and materials that the good special teacher uses.

No attempt will be made at this point to describe the special materials needed for working with perceptually handicapped children. (A list of commercial supply houses that can furnish adaptable materials and a listing of teacher-developed concepts for devising materials are included in Appendices V and VI.) By far the best source of appropriate materials is the inventive teacher who perceives the special need and shops the local department and hardware stores until something suitable is found, or enlists the aid of the school services department in constructing aids of her own design.

The fundamental method that is called for is actually appropriate to all students for maximum learning progress. Some students can learn without it--they always have. But it is absolutely essential to those with

perceptual handicaps. Having a variety of activity centers, thorough orientation to established routines, and grouping for independent study are techniques that allow for the use of exploration and discovery method:

> Exploration and discovery invite involvement. Involvement in turn, invites questioning, and the spirit of inquiry invites and compels search. The questions raised, however, must be real questions whether they are asked by teacher or pupil. . . . It is through insightful questioning that the teacher may release the learner . . . may help him to "open up" to the world; may sensitize him to those aspects of his environment which have not been brought into the focus of his perceptual field . . . errors and mistakes are viewed as incomplete learnings rather than as shortcomings or occasions for humiliation, reprimands, or low marks. Incomplete learning becomes the clue for the teaching-learning focus, for clarification of perceptions . . . if children are to uncover their full potential, they must be helped to see themselves honestly but acceptingly. . . . The teacher gains rather than loses in importance as he operates in this way. . . . To his general knowledge about children and the way they learn, he constantly adds specific information about each individual whom he observes. He moves from the role of teller to the role of suggester, he becomes a provider of stimuli, a raiser of questions, a sage wise enough to step aside at times to allow the learner to find a way through the problem, but he remains always a support when the pupil has lost momentum [46].

This method is certainly not foreign to the competent elementary teacher. Such teachers have always employed it to a large extent. This point of view is supported by the criteria for selection of special class teachers for the Oakland County (Michigan) Perceptual Development Program:

> The teachers for the . . . Program are chosen because they are good elementary teachers who have worked well with children in a group situation or individually, know beginning academic skills of young children, and have a variety of skills and creativity in executing classroom instruction [80].

Special education vs. individualized education.--It has been pointed out that special education was developed to deal with problems not being recognized and/or dealt with properly by the regular public school classes. This was not to say that special classes are the best way to deal with most perceptually handicapped children or to condone the lack of provision in the regular classes.

On the contrary, many professionals, even some in special education, feel that many special classes are stopgap devices rather than something desirable to be promoted and expanded. Except for an extremely small number, atypical children are more like normal children than they are different. And they are properly the concern of regular classroom teachers and administrators before becoming the concern of specialists.

> . . . in practice an artificial dichotomy has developed which separates learners into two groups. Such a division--into those pupils "in the regular program" and those pupils "in special education"--ignores the continuum of individual differences and fractionates many aspects of educational effort. One consequence is that general curriculum workers tend to lack an awareness of the need to break down conceptualization processes into substeps for many pupils (and the contributions from Special Education to this need): while special education curriculum personnel tend to concentrate on specialized methods for immediate goals with a lack of awareness of the need to develop depth and sequence [68].

Another important question is whether by taking children out of the regular classroom they, and those who remain behind, are being deprived of some experiences which are vital in their education for citizenship and valuable

in the development and use of their abilities [44]. When children are segregated for any reason:

> . . . it is difficult for them to acquire a feeling of oneness with their fellow men. It is important that . . . [there be] opportunities for interaction with people who are different, in an atmosphere where difference is valued rather than feared. . . . To the extent that an assignment to an ability group pegs a child as to ability and status, it tends to reinforce feelings of either inferiority or superiority, neither of which is conducive to the development of fully functioning people [73].

Guide for individualizing programs.--Thorough multidisciplinary diagnosis should set the stage for prescribing what educational program is most appropriate for a perceptually handicapped child. It is not a case of adopting one program to the exclusion of the rest. Ideally, it should be possible to prescribe, as needed, any one or any combination of the programs previously described in this chapter, from residential placement to individualized instruction within the regular classroom. It is not likely, however, that exactly appropriate prescriptions can be carried out in most communities at the present time. What can be done must necessarily be in terms of existing facilities. But, the goal should always be to offer the best treatment possible according to comprehensive diagnosis and under the local circumstances. And, if the right facilities are not available, plans should be instituted at once to establish them at the earliest possible date (see Chapter VI for recommendations for program development).

In the meantime, many teachers will be faced with the need for individualizing educational experiences in the regular classroom as perhaps the only means available for doing anything positive for the perceptually handicapped children in their charge:

> This requires the teacher to think of himself as a learner who needs to explore his student's perceptions of the subject and themselves so that he can give special treatment to the individual [61].

It is recognized that already difficult work-loads are assumed by most elementary teachers. While they are generally quick to acknowledge the desirability of meeting each child's needs within a regular classroom situation, most are honestly convinced that this is an unattainable ideal under the circumstances. What is being suggested here is that one of the existing circumstances can be altered at the teacher's will to allow much greater attention to individuals.

A laboratory school situation has been observed wherein the classroom teachers were assisted at all times by one or two student teachers and two or three part-time participating students, either high school or college students with an interest in teaching. These aides were assigned to oversee the various activity centers of the rooms which left the regular teacher free to work with small groups or individuals and to coordinate the total room activity. Many are convinced that adult or older student aides are the ultimate solution for individualizing

education. However, a number of regular public school classrooms were also observed where teachers were carrying out the same kind of procedures by training even first and second graders to operate activity centers for themselves. Upon entering a second-grade room, on one recent visit, several clusters of desks were noticed at which small groups of children were independently busy at tasks they had helped to set for themselves. In one corner a "librarian" was checking books in and out. Two children were pinning up art work. One young man was on his way to the school office to handle some necessary records. Someone was caring for the turtle and the fish. There was complete freedom of movement, yet all were seriously at work with reasonable quiet. The teacher was conferring with only one person at a table. Her aides were her own students. And their efficiency was hard to believe. Yet, six months earlier they were just another typical second-grade class. This teacher had carefully and deliberately, step by step, taught her students at least one good way to perform each needed job and then let them practice doing it. When enough students had mastered a repertoire of basic skills at independent activity, she was then able to free herself to work more closely with those who needed special help. In such a classroom environment one cannot fail to be impressed by the high level of general achievement, the enthusiasm of the students toward their work, the high degree of self-control even with freedom of movement, and

the availability of individual attention as needed. Altering the teaching approach from a predominance of telling to one of facilitation and coordination goes a long way toward making individualization possible.

Two volumes are recommended as especially helpful in learning how to provide this type of instruction: Learning How To Learn: An American Approach to Montessori, by Nancy McCormick Rambusch, and Individualizing Instruction, ASCD Yearbook, 1964.

Summary.--Programs developed for teaching perceptually handicapped children how to learn effectively include: (1) residential school placement, (2) special day school placement, (3) special (segregated) class placement, (4) working with an itinerant teacher on a therapy-session basis, and (5) individualized instruction within the regular classroom. All five programs basically seek to provide individualized instruction in terms of needs determined by comprehensive diagnosis. The methods and materials that are seen as most appropriate in any of the five programs, whether devised by teachers or commercially supplied, resemble those developed by Maria Montessori. Very few students actually need any type of special class placement. Special schools and departments of special education in public schools have grown out of sensible proportion due to a lack of recognition and/or provision for individual differences in regular classroom programs. It is recognized

that when children are segregated for any reason this in itself tends to stunt healthy mental development. The primary aim of special classes is rehabilitation and successful coping with the "normal" world, and is in recognition of the fact that special classes are desirable only as emergency measures. Therefore, except for an extremely small number of severe cases, increased emphasis should be given to individualizing education in regular public school classroom situations and the earliest possible elimination of most special class placement.

CHAPTER VI

RECOMMENDATIONS FOR DEVELOPING NEW CURRICULA

Organizing for action.--Nothing whets a good teacher's appetite more for learning about new approaches than hearing about positive results. The good teacher strongly identifies with the individuals in her charge and suffers acute frustration when any child is blocked in what she knows to be an innate desire to learn:

> . . . an inborn urge and drive to push our own development and self-realization to their limits [28].

Therefore, a crucial first step a school system needs to take in developing new curricula for perceptually handicapped youngsters is to communicate with the total staff about: (1) the need for new ways of working with students with perceptual handicaps, and (2) the benefits that have been realized from certain new approaches.

How this communication should proceed in a given school system will depend on a variety of local factors, but in any case it should be thorough, somewhat startling, and offer new hope for better release of student potential.

Some schools have initiated this process by bringing in a specialist to speak and answer questions at a total staff meeting. Other schools have organized small groups of administrators and/or teachers to study together and

make visitations to various on-going programs, and then utilized these staff people in various ways to "spread the word." Still other systems have used combinations of these two means. An important by-product of some measure of local staff involvement in such activity is the increased acceptance of new ideas presented, perhaps because of obvious approval of the ideas by significant persons within the local system. The possibilities for effective communication are many; however, not much success has yet been achieved in other than "live" confrontations with the people to be affected.

Another crucial first step is to establish a coordinator for the program development activities. This person may be elected or appointed--from the teaching staff, from the administrative staff, or an outside professional retained for this specific task. The important--vital--thing is that he have the real authority to represent the staff, to facilitate and coordinate their activities, and to influence needed changes in system policies, procedures, and financial support to allow staff-developed program hypotheses to be tested in operation. For helpful information about this crucial and often very difficult role, three basic volumes are recommended: Role of Supervisor and Curriculum Director in a Climate of Change [82], Research for Curriculum Improvement [81], and The Human Group [42], and a professional journal article, "Recipe for Revolution: Beloit's Nineteen Ingredients" [39].

Taking inventory of what exists.--Once a staff has had its intellectual equilibrium disturbed by effective communication of problems and possibilities, and a coordinator is established, it is time to take stock of what there is to work with in the local context. For this inventory-taking activity the coordinator should facilitate the organization of a Pilot Committee which includes interested and highly motivated key members of both the teaching and administrative staff.

The Pilot Committee should make a thorough and systematic study of: (1) previously established statements of general philosophy and specific program goals, (2) current practices and how these compare with stated objectives, (3) operating policies, (4) physical facilities, (5) fundamental limits and possibilities for financing the educational program, (6) related special resource people and facilities in the community or available from others, and (7) possibilities for released TIME for staff involvement.

Inventory findings of the Pilot Committee should be distilled and simplified for communication to the staff--as needed.

Defining problems and setting goals.--The defining of problems and the setting of goals must be in terms of fundamentals. It should be remembered that the child's needs are to be programmed, not his label, so that there

can be no "one method" [68]. The committee should direct its efforts toward the generation of basic program concepts that will promote exploration and discovery by teachers as well as students.

> Though the knowledge of the part played by perception and concept formation in the learning of children has greatly increased in the last decade, much remains to be done. The implications have yet to be translated into practice. It is here that the cooperation and collaboration of teachers is needed. Action research is imperative. . . . There is just too much for either professional psychologists or educationists to attempt. Action research is an educative process for both teachers and children. A child learns how to learn only by learning something. The selection of curriculum content as well as methods and materials must be explored by teachers. Administrators must shoulder the responsibility for the initiation and leadership in such projects [49].

It is absolutely necessary that the committee have an atmosphere to work in that is free from criticism, condemnation, or derision, particularly at the beginning of any effort dedicated to the generation of new ideas. Ways must be found early in the creative process to maximize the production of quantities of new and fresh ideas--something not likely to happen where the fear of condemnation is present. It is also important at beginning stages of the curriculum development process to concentrate on areas of agreement rather than extensive debating of the pros and cons of problems where no satisfactory solution is likely to be found at the time [39].

When idea generation begins to slow down a little in the Pilot Committee (or in any small study group), it is often helpful to enlarge the original group. One effective

way to do this is to bring consultants into the deliberations:

> New points of view often start the flow of ideas again. A consultant often functions as a "pump primer." Those who have been involved in the creation of new programs at other schools are particularly useful. Not only do they contribute the fruits of their own programs, but, also, when confronted with some of the problems at hand . . . they are often able--and trained--to make some very original contributions [39].

Some of the problems that must be dealt with will clearly present themselves in the process of taking inventory. Others will have to be precipitated into view by a thorough analysis of symptomatic information collected. Some of the problems will be of strictly local import, but some will have implications for education-at-large and studies should be conducted in a manner that will allow public access to program results. Basic goals should be established in terms of aiming to achieve for students educational experiences that are consistent with both individual needs and a general philosophy of education that is adequate to the times. Until these two basic issues are met and resolved, a curriculum committee has no real sense of direction. Once they are tentatively resolved, these "ends-in-view" should be communicated to the entire staff--for their acceptance, rejection, or revision. It is essential to work out a general concensus before beginning actual program design, because these aims and goals must serve as criteria for evaluating program hypotheses and operational results.

Comprehensive investigation of previous research.--Designs for new curricula will have little integrity if they are only grounded in concensus agreements by members of a curriculum committee, or even by the total staff. There must be comprehensive investigation and interpretation of previous research findings.

> We do not deny the impact of habit, custom and tradition upon curriculum. These are significant forces affecting curricular decisions which every group must take into account. We wish to make clear, however, that we reject these as inadequate bases for curriculum planning. Rather we favor an approach which poses fundamental questions and which makes its choices deliberately in favor of those alternatives which are supported by evidence gathered [24].

Few school systems now have adequate lines of communication with sources of research information. But there should be a continuous and expanding flow of information into the school system from a wide variety of relevant sources (for a listing of sources related specifically to perceptual disorders, see Appendix VII). Important information may be from the fields of pscyhology, sociology, educational theory, child growth and development, neurology, and psychiatry. Some of it may be found in publications by professional organizations concerning selection of and orientation of subject-matter content. In short, it may be information from any source which will help the staff take into account the total range of factors which may affect the success of the program. Curriculum workers will plan best:

> . . . if they are acquainted with the culture and have expert knowledge in a special direction [97].

Saturday Review and Time, as well as many professional journals, offer information about important new books in several fields that can be drawn upon by curriculum makers. Starting a healthy (and vitalizing) flow of new information into a school system is usually just a matter of writing postcards to request placement on mailing lists.

One source of information that is rapidly growing in scope and value is the U.S. Office of Education. This office is sponsoring a great deal of research and coordinating the communication of findings to the public. It is also administering a growing quantity of federal legislation that can be utilized to authorize and support local research and program development. Information on the policies and procedures, as well as the means of applying for grants under these acts, may be obtained from the Bureau of Educational Research of the U.S. Office of Education.

Another rapidly developing resource for assistance in curriculum development is the State Department of Public Instruction. Under new federal provisions state departments are adding to their consulting staffs--especially in the area of curriculum and instruction. School systems may now obtain from most of these departments consulting assistance in designing curriculum research and/or qualifying for federal funds for project operation.

Of course, an investigation of previous research means that curriculum committees must read and ponder new information to decide what, if any, bearing it may have on the work at hand. And wherever possible the committee should seek to distill important information into general principles that can be used to assess present operations and develop program hypotheses to be tested in future operations.

Synthesis of curriculum proposals.--Once the curriculum study group (Pilot Committee) has clearly in mind: (1) a philosophical foundation to work from, (2) the realities of local problems and possibilities, and (3) available research information; it is time to put together some new program hypotheses consistent with these three areas of understanding. Educators who plan programs will be, at best, creative synthesizers, relying on knowledge (the facts of research and opinions of experts) available from all the various fields that might contribute to program improvement.

As program hypotheses are put together, they should be written into a comprehensive program proposal. This is another stage at which enlarging the Pilot Committee can be most helpful.

> Before taking a completed plan to the whole faculty for action, there is great value in putting a first draft into their hands--perhaps even a second draft--complete with the specific points on which a vote will eventually be taken, the rationale, and the full background of the problem. As much feedback as possible should be

> invited from the . . . [staff] . . . at this time. This may be the first time that many of the faculty have been exposed to the proposal in its entirety and many of their comments may be highly constructive. . . . Drafts may be given to individuals known for their perceptiveness, their strong feelings against the program, or their ability to expose hidden flaws. If this procedure is followed, the proposals may be strengthened, and other faculty members will be aware that their opinions had been sought . . . the committee will have had a greater opportunity to have been exposed to and to have wrestled with almost every conceivable argument related to the program [39].

Putting proposals into action.--Activating new curriculum proposals is best done as a Pilot Study. Like the cautious bather who gingerly dunks one toe in the water to see if conditions are suitable for more complete immersion, the Pilot Study makes a smaller tentative commitment to action to assess the probabilities for successful operations on a larger scale. It implies the expectation of adjustments and on-the-spot revisions as feedback information points up the need. Cooperating teachers are able to be less anxious about how the new program will affect their classrooms because they know they can influence constructive changes in procedure. They don't have to feel that they have been handed a commitment too large or too set to resist or even reject when the evidence says it is going wrong. And they can feel that the door is open for contributions of creative ideas which will improve on original design.

The classrooms chosen to participate in the Pilot Study should be those wherein the teachers are most

interested and willing to cooperate. And the teachers selected should be capable of varying their approaches to teaching so that the proposed methods may be given a fair chance to succeed.

Evaluating program results.--Professional literature abounds with indictments upon curriculum makers for failing to evaluate programs properly. Few schools make a thorough analysis of how newly instituted methods and materials are affecting students--or even if the methods and materials are being used as intended. Once a program design is committed to writing and published for distribution as a "guide," the curriculum committee more often than not folds its tents and returns to other "business as usual." It seems that it is one thing to plan well for change and quite another to carry it out.

> [But] . . . the art of teaching becomes identical with the science of education when a teacher attempts to predict the impact of his behavior on learners, and to test the accuracy of his prediction [81].

The difficulty abides in a certain human character trait. A person's conscious sphere is limited. One must relegate some of his thought processes to his subconscious mind. He devises a fix on a pattern of behavior and submerges it, letting it operate a certain function almost automatically--much like putting the instructions on magnetic recording tape. And he will try to use these recorded instructions (habits) for behavior wherever and whenever they seem to fit the circumstances. If the

circumstances become radically different (as in an experimental situation) and "programmed behavior" is ineffective, a person will ordinarily persevere in trying to apply this behavior anyway, because to meet new circumstances adequately would mean removing a "program" and constructing a new one to take its place. This process involves a great deal of intellectual work which most people would usually prefer to put off until tomorrow.

> Attempts at change in a system inevitably evoke resistance to change. It is as if the larger system were defending itself, trying to maintain the previous equilibrium of role expectancies and role behaviors [81].

Good evaluation, then, will include checking from the beginning of operations to see if proposals are being tried out or resisted. If they are being resisted, the Pilot Study Committee should concern itself with analyzing the situation to discover the underlying forces that evoke resistance.

> Analysis often reveals the source of resistances and helps distinguish fundamental from superficial ones. Once barriers have been reduced or removed, existing positive motivation may bring about substantial, relatively tension-free change [81].

Pre-testing and post-testing with appropriate instruments that can yield data for statistical analysis is an important kind of evaluation. Some of the results of innovations may thus be interpreted and made available to others who would design new programs. There is a great need, if not a professional responsibility, to contribute to a general pool of research information--to help advance

the level of awareness in the field. But this approach must be seen as only part of good evaluation, not the whole of it.

> It has been our painfully achieved conclusion that if evaluation is to be of help it must be carried out to provide feedback at a time and in a form that can be useful in the design of materials and exercises. . . . The essence of evaluation is that it permits a general shaping of the materials and methods of instruction in a fashion that meets the needs of the student, the criteria of the scholar from whose discipline materials have been derived, and the needs of the teacher who seeks to stimulate certain ways of thought in his or her pupils. . . . Evaluation is often viewed as a test of effectiveness or ineffectiveness--of materials, teaching methods, or whatnot--but this is the least important aspect of it. The most important is to provide intelligence on how to improve things [14].

Needed educational research.--An analysis of what is presently known about the education of children with perceptual handicaps indicates that validated information is lacking in several important problem-areas. There is great need for public school systems to make these problem-areas the focus of research projects that can aid in the development of local curricula and contribute to a general pool of information for all educators to draw upon.

Studies should be established to analyze the fundamental reasons that learning is facilitated by the use of certain materials. It would be immensely helpful to know what underlying principles operate to enable a child to utilize certain materials to learn in spite of a perceptual handicap. If correlations could be established between operational principles brought into play by certain

materials and specific types of perceptual handicaps, it would be possible to be more accurate in prescribing appropriate educational experiences once the type of perceptual disorder is diagnosed.

Studies are needed to determine the incidence of children with perceptual disorders at the various age levels. The theory that most perceptual disorders are developmental and not pathological in nature needs additional supporting evidence to be considered valid. Also, when it is possible to establish more conclusive evidence of the extent of perceptual problems, it will be easier to motivate school boards and legislatures to provide the services needed for these children.

Research is needed to determine the incidence of emotional problems, at various age levels, that are primarily due to unattended or mistreated perceptual disorders. If evidence could be established concerning the amount of time that perceptual disorders can exist unattended or mistreated before this results in the onset of serious emotional disorders, curriculum planning committees could be greatly facilitated in establishing priorities for action.

The effects on classroom behavior by treatment with various drugs needs to be evaluated. School systems cannot administer and measure the effects of drugs, but they can cooperate with physicians by making systematic observations of changes in classroom behavior induced by the drugs

prescribed by physicians. An extremely hyperactive child, for instance, has limited or no control over this way of responding to his environment. A certain drug might intervene in the functioning of the central nervous system and make it possible for him to gain control, thus being freed to pay attention to learning. As of this date there is little objective evidence of the effects of drug therapy on classroom behavior. What evidence there is points to remarkable potential, just as insulin has made it possible for diabetics to lead more normal and productive lives.

Research is needed to determine the fundamentals of instructional methods that are successful in helping perceptually handicapped children "learn how to learn." At this point in time many different and some seemingly opposed methods seem to work a good deal of the time. It would be helpful to have these "successful" innovations analyzed to find out what are the common basic reasons for their productive influence. The methods of Montessori, Frostig, Delacato, Kephart, Lehtinen, Strauss, and Lukens, for instance, should be comparatively analyzed to see what fundamentals they touch on in common. From this identification of the basic contribution each successful method makes to improved learning in spite of a perceptual disorder, it would probably be possible to devise even better and more economical teaching methods.

Validation of the meaning of profiles (patterns) of scores obtained on I.Q. sub-tests is needed. If the

attainment of certain profiles of sub-test scores could be correlated with the presence of certain types of perceptual disorders, it would give teachers something to go on even while waiting for the results of more comprehensive diagnosis. Advance knowledge of the profile derived for a child and its validated general implications would greatly assist the medical examiner in pinpointing the etiology of the child's perceptual disorder(s).

Summary.--An important first step in initiating the development of new curricula is the creation of a small crisis by stimulating, even startling, a school staff with strongly supported evidence that they have a mutual problem which, unsolved, is having serious consequences for children in their charge. Guest experts or key staff members who have made a special study can easily perform this service. When a staff is "sufficiently stirred up," a coordinator should be established to facilitate productive action toward the development of new curricula. It is not necessary to have all the staff at work at any one time on developing curriculum proposals, but all need to be involved in some way at least some of the time--if only to offer critical appraisals. Establishing a Pilot Committee of highly motivated staff and administrators is a good way to begin the actual process of curriculum development. Research and synthesis most accurately describe the legitimate business of a curriculum committee. They must do

research to discover what elements there are to work with that relate to the problem at hand and synthesize new approaches for dealing with it. At various points along the way, outside visitations, guest lecturers, and working with consultants can help "keep up a full head of steam." Also at various points along the way the total staff should be informed--in open forums--of progress being made. It is important that there be general concensus on basic aims and goals which will serve as criteria for evaluating proposals and program results. The best program proposals can be developed by an approach in which fundamental questions are posed and choices are deliberately made in favor of alternatives supported by evidence from a wide variety of pertinent sources. Among important emerging curriculum resources are the U.S. Office of Education and the State Departments of Public Instruction. They now give assistance in designing curriculum research and qualifying for financial aid from the federal government to support new programs. Once program proposals are clearly worked out and understood by the total staff, a Pilot Study operation is the best way to put these concepts into action. Since a Pilot Study is small enough to observe closely, errors can be corrected and improvements made before full-scale operations are begun. Provisions should be made for continuous feedback of program effects--starting with the first day of operations. Despite every effort to smooth the way, impending change inevitably evokes resistance. Teachers,

being human creatures of habit, will most often tend to continue old modes of operation--even after contributing to and showing high interest in the new design. Cooperating teachers for the Pilot Study should be chosen on the basis of interest, competence, and flexibility so that they are willing and able to find ways to give the new proposals a fair test. But the Pilot Committee will also need to devise ways to help cooperating teachers analyze their performance as compared to aims agreed upon. The usual objective pre-testing and post-testing and analysis of results are important for the local school system and the possible contributions they may make to knowledge in the field, but by far the most value is obtained from evaluation efforts by providing intelligence that permits a general improvement of methods and materials of on-going instruction, especially in terms of the individual student. Education is on the threshold of a new era wherein it will be almost impossible not to have increased concern for perceptually handicapped learners. But much new programming and vastly increased public school research are needed if anything <u>significant</u> is to be done for this group that comprises nearly a quarter of the children of elementary school age.

> In reading and listening to the current dialogue on malfunctioning of perceptual processes and the implication it has for the learning process, one cannot help but be aware at times of an intriguing naivete that reflects the innocent as he surveys a still virgin field. Though the first flush of the "discovery of perception" as a problem area with the exceptional has somewhat abated, the problem of comprehension and utilization in terms of the pragmatics of the child who

> has "perceptual difficulties" is still very much with us [99].

Perhaps, for a first step forward, it will help if we make it a point to see these children not as having learning disabilities, but as having differentially based learning problems--problems that can be solved. In any case, now that it is known that proper assistance can be given to free a human personality who is otherwise doomed to endure gradual destruction, a fundamental question is posed: can it be anything short of willful negligence to fail to try to devise ways to give the needed help?

APPENDIX I

CHARACTERISTIC BEHAVIORAL SYMPTOMS [31]

A. The child may evidence disturbances in perceptual motor functioning:

1. He may show reversals in reading and/or writing.
2. He may show difficulties in left to right orientation.
3. He may show difficulty in eye-hand coordination.
4. He may have figure-ground problems--selecting out a particular word from a page (for example), or separating foreground from background.
5. He may have problems with form constancy--where he can recognize "a" in printing, but not in script, or "a" in a book, but not on the blackboard.
6. He may show difficulty in form discrimination--being unable to tell a circle from a square, or an "a" from an "e".
7. If the child has problems with the rotation of forms--we would see much frustration with trying to differentiate "b" and "d", "s" and "z", "p" and "q".
8. He may have a very poor sense of spatial relations--poor judgment of distance and size of things in space.
9. He may be a very poor reader, but good in other subjects.

B. The child may have difficulty in concept formation:
   1. His ability to think things out, to reason, may be diminished.
   2. He has no basic comprehension of what he reads. He is unable to summarize or give you the main theme of what he has read, even though he can read it.
   3. He cannot follow directions.
   4. Demonstrates an inability to generalize, that affects his dealing with new situations.
   5. Would show problems in grasping knowledge of quantities, months of the year, putting the same kinds of things together, how things may be alike, etc.

C. He may show language difficulty:
   1. Developmentally his speech may be at a more immature level than would be expected of a child of his chronological age.
   2. His general language development may show a developmental lag.
   3. May evidence a particular difficulty expressing himself--finding the right word, fluency of speech.
   4. His auditory discrimination may be poor, therefore his ability to discriminate what is being said to him.

D. There may be problems in behavior:
   1. He may evidence a great deal of hyperactivity--moving about constantly, or even when seated, constantly in motion.
   2. He may be a discipline problem in the classroom. His

lack of impulse control may lead him into a great deal of difficulty because he does not have the inhibiting mechanism that other children have, and acts upon most impulses immediately. He cannot resist touching objects or people. If angered, may strike out without "thinking." This lack of impulse control would also evidence itself in situations where a delayed response is necessary and this child cannot restrain himself and acts or speaks out of turn.

3. He may overreact to emotional stimulation and show catastrophic reactions to the most minor situations.
4. He may seem to be unable to focus on what is being taught, but is paying attention to many things at once, giving nothing his full attention.
5. He shows a short attention span.
6. He is highly distractible and very small things will pull his attention away from what he is supposed to be doing.
7. His efficiency and command of skills varies from day to day--yesterday he knew his multiplication tables perfectly, but today can't remember a thing.
8. His lack of success in the past often creates problems before a task is begun; he is frustrated and angry, and may show very poor school attitudes.

APPENDIX II

PRELIMINARY "SIGNS AND SYMPTOMS" CATEGORIES [20]

A. TEST PERFORMANCE INDICATORS

1. Spotty or patchy intellectual deficits. Achievement low in some areas; high in others.
2. Two years below on drawing tests (man, house, etc.) when compared with mental age on standardized intelligence tests.
3. Geometric figure drawings poor for age and intelligence.
4. Poor performance on block design and marble board tests.
5. Very poor showing on group tests (intelligence and achievement) and daily classroom exams which require reading.
6. Characteristic patterns on the Wechsler Intelligence Scale for Children, including "scatter," high verbal-low performance, low verbal-high performance.

B. PERCEPTUAL--CONCEPTUALIZATION DISTURBANCES

1. Impaired tactile discrimination.
2. Size discrimination impaired.
3. Impaired right-left and up-down discriminations.
4. Poor spatial orientation.

5. Time orientation impaired.
6. Distorted concept of body image.
7. Impaired judgment of distance.
8. Poor figure-ground discrimination.
9. Impaired part-whole discrimination.
10. Frequent perceptual reversals in reading and in writing letters and numbers.
11. Poor perceptual integration. Child cannot fuse sensory impressions into meaningful entities.

C. SPECIFIC NEUROLOGIC FINDINGS

1. Few, if any, "gross" abnormalities found.
2. Many "soft," equivalent, or borderline findings.
3. Reflex assymetry.
4. Mild visual and/or hearing impairments.
5. Strabismus.
6. Nystagmus.
7. High incidence of left, mixed, and/or confused laterality.
8. Hyperkinesis.
9. Hypokinesis.
10. General awkwardness.
11. Poor fine visual-motor coordination.

D. DISORDERS OF SPEECH AND COMMUNICATION

1. Impaired auditory discrimination.
2. Inclusion of all the aphasias.
3. Prevalence of slow language development.
4. Mild hearing loss.

5. Frequent mild speech irregularities.

E. DISORDERS OF MOTOR FUNCTION

1. Athetoid, choreiform, tremor, or rigidity of hand movements.
2. Frequency of tics and grimaces.
3. Late in learning to walk.
4. General awkwardness or clumsiness.
5. Poor fine and/or gross visual-motor coordination.
6. Hyperactivity.
7. Hypoactivity.

F. ACADEMIC ACHIEVEMENT AND ADJUSTMENT

1. Reading disabilities.
2. Arithmetic disabilities.
3. Spelling disabilities.
4. Poor printing, writing, and/or drawing ability.
5. Variability in performance from day to day.
6. Poor organization of work.
7. Slow to finish work.
8. Frequently does not understand instructions.
9. Frequently does well on verbal tasks.

G. DISORDERS OF THINKING PROCESSES

1. Poor abstract reasoning ability.
2. Thinking is concrete.
3. Conceptualization difficulties.
4. Disorganized thinking.
5. Poor memory.
6. Autistic.

7. Thought perseveration.

H. PHYSICAL CHARACTERISTICS

1. Excessive drooling as young child.
2. Excessive sweating.
3. Prevalence of thumb-sucking, nail-biting, head-banging, teeth-grinding.
4. Frequently has peculiar food habits.
5. Slow to toilet train.
6. Easy fatigability.
7. Frequent enuresis.
8. Encopresis.

I. IMPULSE CONTROL

1. Tend to be very impulsive.
2. Explosive.
3. Low stimulus threshold.
4. Poor emotional and impulse control.
5. Low frustration tolerance.
6. Reckless.
7. Disinhibition.
8. Act before they think, then sorry.

J. SLEEP CHARACTERISTICS

1. Frequent rocking and head-banging before falling into sleep.
2. Irregular sleep patterns as young child.
3. Frequent night terrors.
4. Early resistance to naps and early bedtime.
5. Excessive movement during sleep.

6. Light sleepers.
7. Deep sleepers.

K. RELATIONSHIP CAPACITIES

1. Poor peer group relations.
2. Fleeting attachments of self-interest of the moment.
3. Easy acceptance of others alternating with withdrawal and shyness.
4. Poor judgment in social and interpersonal situations.
5. Socially bold and aggressive.
6. Inappropriate, unselective, and often excessive displays of affection.
7. Desire to touch, cling, and hold on to others.

L. PHYSICAL DEVELOPMENT

1. Frequent lags in development, e.g., motor, language, etc.
2. Physically immature.
3. Physically advanced for age.

M. "ANTI-SOCIAL" BEHAVIOR

1. Aggressive.
2. Negative to authority.
3. Rough, cruel, defiant.
4. Unmanageable.
5. Social competence subnormal for age and measured intelligence.
6. Unpredictable.
7. Lying.
8. Stealing.

9. Sex misbehavior.
10. Sociopathic behavior.

N. "PERSONALITY" CHARACTERISTICS

1. Easily led; gullible.
2. Variable from day to day.
3. Moody.
4. Frequently sullen and seclusive.
5. Timid.
6. Phobic.
7. Fearless.
8. Very sensitive.
9. Remorseful.
10. Demands own way; frequent rage and tantrums when crossed.
11. Poor adjustment to environmental changes.
12. Sweet and even tempered.
13. Friendly and outgoing.
14. Talkative and eager to please.

O. DISORDERS OF ATTENTION AND CONCENTRATION

1. Short attention span for age.
2. Distractible for age.
3. Impaired concentration ability.
4. Inattentive.
5. Perseveration.
6. Impaired decision-making ability, particularly when given too many choices.

Several authors note that many of the characteristics improve with the maturation of the central nervous system.

Variability beyond that expected for age and measured intelligence appears as a common denominator throughout most of the signs and symptoms. This, of course, limits predictability and expands misunderstanding of the child by his parents, peers, teachers, and often the clinicians who work with him.

A frequency distribution of the signs and symptoms resulted in the following listing of the ten most often cited by the various authors, in order:

1. Hyperactivity.
2. Perceptual-motor impairments.
3. Emotional lability.
4. General coordination deficits.
5. Short attention span.
6. Impulsivity.
7. Distractibility.
8. Specific learning disabilities:
    a. Reading.
    b. Arithmetic.
    c. Writing.
    d. Spelling.
9. Language disorders.
10. Equivocal neurological signs and E.E.G. irregularities.

The "sign" approach can serve only as a guideline for identification and diagnosis.

The protean nature of the disability is the obvious conclusion which can be drawn from the approach to symptomatology and identification taken above.

The situation, however, is not as hopeless as it might appear. Order is somewhat salvaged by the fact that certain symptoms do tend to cluster to form recognizable clinical entities. This is particularly true of the "hyperkinetic syndrome," within the broader context of minimal brain dysfunctioning. The "hypokinetic syndrome," primary reading retardation, and to some extent the aphasias, are other such examples.

If these disorders could be established as specific diagnostic categories within the minimal brain dysfunction classification, the total problem might well be on its way to solution. This is seen as a relatively easy task and seems a logical starting point.

APPENDIX III

STEPS IN ADEQUATE DIAGNOSIS

1. Make systematic observations of any child who exhibits learning problems.

2. Make systematic records of observations, noting what specific behavior occurred and how much of it. A categorized check-list is helpful.

3. Meet with parents to:

   3.1 discuss observed behaviors,

   3.2 obtain developmental background information,

   3.3 gain concurrence for comprehensive psychometric testing,

   3.4 arrange for a thorough medical examination.

4. Obtain a multi-disciplinary evaluation of all information gathered: teacher observations, developmental background, psychometric evidence, and medical evidence. Preferably the evaluation should be done in a learning disabilities diagnostic clinic, but in the absence of such a facility a multi-disciplinary evaluation team can be organized from appropriate members of the school staff and local professional personnel.

5. Use the comprehensive diagnosis information to plan educational experiences for individuals in terms of their specific learning needs.

APPENDIX IV

SIX TYPES OF INTRACLASS GROUPING [72]
(An Adapted Listing)

1. Interest grouping.--Children who are interested in a particular topic such as "butterflies" in science will pool the information they have gained from reading different science books and other materials.

2. Special needs grouping.--Certain children from other reading groups may be called together to form a special group for learning a particular technique they need, such as help with vowel sounds in phonetic analysis of words.

3. Team grouping.--Here two children are working together as a team on a specific problem common to both.

4. Tutorial grouping.--This refers to a group formed for direct instruction by the teacher or sometimes by a more advanced child who needs help from the teacher in planning what he will do with the small group which he is leading.

5. Research grouping.--This is a useful device when two or more children work together on a particular topic to prepare a report for the class or other rooms in the school.

6. Full class grouping.--There are a number of activities which are best introduced to a total class in the sense that they are common or core learnings. For example, no matter what the different reading levels of a fourth grade may be, all of the children will need some help in learning how to use a dictionary effectively.

APPENDIX V

COMMERCIAL SOURCES FOR PERCEPTUAL DEVELOPMENT MATERIALS [69]

AMERICAN BOOK COMPANY 300 Pike Street Cincinnati 2, Ohio	Upton Arithmetic Workshop Books 1, 2, and 3
AMERICAN PRINTING HOUSE FOR THE BLIND 1839 Frankfort Avenue Louisville 6, Kentucky	Touch and Tell Volumes 1 and 2
BECKLEY-CARDY COMPANY 1900 W. Narragansett Avenue Chicago 39, Illinois	Chart Printer Print-Scrip Sentence Builder
BENTON REVIEW PUBLISHING COMPANY Fowler, Indiana	Phonic Sounds We Use Books 1, 2, and 3
CADILLAC PLASTIC AND CHEMICAL COMPANY 1511 Second Avenue Detroit 3, Michigan	1/4" x 9-3/8" x 9-3/8" clear Plexiglas for patterns
CHRONICLE GUIDANCE PUBLICATIONS, INC. Moravia, New York	Sounds I Say Activities Books 1 and 2 Teacher's Manual
CONTINENTAL PRESS Elizabethtown, Pennsylvania	Practice Exercise in Arithmetic Books 1, 2, 3, and 4 Teacher's Manual Dittoed Material (Independent Activities, Rhyming, etc.)
CONSULTANTS PSYCHOLOGISTS PRESS 577 College Avenue Palo Alto, California	Frostig Tests
EDUCATORS PUBLISHING SERVICE 301 Vassar Cambridge, Massachusetts	Testing Materials

THE ECONOMY COMPANY 529 W. Capital Avenue Indianapolis, Indiana	Phonetic Keys to Reading Series Teacher's Manuals
FOLLETT PUBLISHING COMPANY 1010 W. Washington Boulevard Chicago, Illinois	Frostig Material Teacher's Manuals
GENERAL PRINTING COMPANY 17 W. Lawrence Street Pontiac, Michigan	Magic Markers Scissors Stamp Pads Ebony Pencils 15" Rulers, Metal Edges General Supplies
E. M. HALE PUBLISHING COMPANY 1201 S. Hastings Way Eau Claire, Wisconsin	Getting Ready to Read Morrison and Seymour-- Mother Hubbard First Steps in Reading-- Books 1, 2, and 3
HALSAM PRODUCTS COMPANY Dept. "N" 3610 Touhy Avenue Chicago 45, Illinois	Changeable Blocks Dominoes Checkers Anagrams Halsam Puzzles
HARCOURT, BRACE AND WORLD 7555 Caldwell Avenue Chicago, Illinois	Testing Materials
HARPER AND ROW PUBLISHERS 2500 Crawford Evanston, Illinois	Gesell Development Kit which includes Tests and Recording Sheets
HARR WAGNER PUBLISHING COMPANY 609 Mission Street San Francisco, California	Deep Sea Adventure Series Jim Forest Series
HOUGHTON MIFFLIN COMPANY 2 Park Street Boston 7, Massachusetts	Experimenting with Numbers Teacher's Manual Discovering Arithmetic-- Books 1 and 2 Pupil's Workbooks and Teacher's Manual Harrison Stroud Reading Readiness Profiles
L. N. SALES COMPANY 12345 Woodward Avenue Detroit 3, Michigan	Child Guidance Toys

LYONS AND CARNAHAN 2400 Prairie Avenue Chicago 16, Illinois	Phonics We Use Books A, B, C, and D
McCORMICK-MATHERS PUBLISHING COMPANY Columbus, Ohio	Puzzle Books--Books 1, 2, and 3 Phonic Books--Speed Boat, Jet Plane, Rocket, Space Ship, Stream Liner, Atomic Submarine
McGRAW HILL BOOK COMPANY 1154 Reco Avenue St. Louis, Missouri 63126	Programmed Reading Material
CHARLES E. MERRILL BOOKS, INC. 1300 Alum Creek Drive Columbus 16, Ohio	Nicky--Grade 2 Uncle Funny Bunny--Grade 3 Tom Trot--Grade 5 Scottie--Grade 3 Adventure Trails--Grade 4
MICHIGAN PRODUCTS, INC. 1236 Turner Street Lansing, Michigan	Playskool Toys Colored Plastic Beads
MICHIGAN SCHOOL SERVICE 312 N. Grand Avenue Lansing 2, Michigan	Folding Perception Cards Gummed 1" White Circles Number Grouping Disks Stencils--Combination Sets Colored Tablets Sewing Cards Beaded Pegs Colored Pegs Peg Board Parquetry Design Blocks Economo Sentence Builder Pupil's Seatwork Chart Flocked Sheets (for flannel board) Co-ordination Board Colored Gummed Paper Construction Paper Sequence Pictures for Peg Board Magic Cards (Classification opposites sequence) Magic Cards--Consonants Magic Cards--Blends and Digraphs Magic Cards--Vowels End-in-E-Game Quiet Pal Game Peg-Flannel Board

NOVO EDUCATION TOY AND EQUIPMENT COMPANY 585 Avenue of the Americas New York 11, New York	Judy See-Quees
OPEN COURT PUBLISHING COMPANY P. O. 7983 Chicago, Illinois	Workbooks NDEA Kit
PACKARD VISUAL SUPPLIES Portage, Wisconsin	My Surprise Book
SCHOOL MATERIAL COMPANY 1801 S. Michigan Avenue Chicago 18, Illinois	English Material
SCOTT, FORESMAN PUBLISHING COMPANY 433 E. Erie Street Chicago 11, Illinois	The New Way We Read-- Gray, Artley, Steel
TEACHING RESOURCES, INC. 334 Boylston Boston, Massachusetts	Visual Motor Perception Teaching Materials
WEBSTER PUBLISHING COMPANY 1808 Washington Avenue St. Louis, Missouri	On the Way to Reading-- Workbook Second Grade Reading Seatwork Eye and Ear Fun--Books 1, 2, 3, and 4 Basic Goals in Reading (Paper Back Workbooks) to 3rd Grade Pre-Primer Seatwork, Althea Beery Primer Seatwork County 5--Adventure with Numbers First Reader Seatwork Seatwork Activities (Stone)
WINTER HAVEN LIONS CLUB P. O. Box 1045 Winter Haven, Florida	Geometric Form Templets and Manual
WORLD BOOK COMPANY 2126 Prairie Avenue Chicago 16, Illinois	I Work By Myself--Clark and Elsbree
WORLD WIDE GAMES Delaware, Ohio	Puzzles Games

APPENDIX VI

TEACHER DEVELOPED CONCEPTS FOR DEVISING MATERIALS [77] (An Adapted Listing)

1. Multi-sensory learning experiences:

   1.1 Audio, visual, and kinesthetic approach to phonics.

   1.2 Auditory perceptual development--tape recorder, musical instruments.

   1.3 Textured letters for tactile reinforcement.

   1.4 Tracing.

   1.5 Color cueing.

   1.6 Enlarging.

   1.7 Find many ways to do the same thing.

2. Manipulative materials to sustain attention and induce personal organization:

   2.1 Self-teaching devices.

   2.2 Dot-to-dot puzzles for parts to whole and figure-ground problems.

   2.3 Abacus with transfer of perceptual patterns of quantity.

3. Cut down extraneous stimuli--focus on the thing to be learned:

   3.1 Portable screens to separate easily distracted children for work.

   3.2 Slotted paper for markers.

   3.3 Work with single pages of workbook material (removed from workbook) with cueing techniques.

   3.4 Cut up workbooks to provide lessons in small steps.

APPENDIX VII

ASSOCIATIONS FOR THE HELP OF CHILDREN WITH LEARNING DISABILITIES [5]

ALABAMA:

ALABAMA FOUNDATION TO AID APHASEID CHILDREN
3261 Mockingbird Lane
Birmingham, Alabama

ARKANSAS:

ARKANSAS ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES
P. O. Box 160
England, Arkansas

ARIZONA:

CHILD STUDY AND CONSULTATION
1141 E. Rose Lane
Phoenix, Arizona

CALIFORNIA:

CALIFORNIA ASSOCIATION FOR NEUROLOGICALLY HANDICAPPED CHILDREN
P. O. Box 604 Main Office
Los Angeles, California

LEARNING AND BEHAVIOR ASSOCIATED CLINICS
California State College at Los Angeles
Los Angeles, California

HARBOR COUNCIL FOR NEUROLOGICALLY HANDICAPPED CHILDREN
11291 McNab Street
Garden Grove, California

COLORADO:

COLORADO ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES
11800 W. 29th Place
Denver, Colorado

CONNECTICUT:

ASSOCIATION FOR PERCEPTUALLY HANDICAPPED CHILDREN
699 Matianuck Avenue
Windser, Connecticut

CONNECTICUT ASSOCIATION FOR BRAIN INJURED CHILDREN
P. O. Box 463
Norwalk, Connecticut

ILLINOIS:

FUND FOR PERCEPTUALLY HANDICAPPED CHILDREN
LEARN--Box 656
Evanston, Illinois

WEST SUBURBAN ASSOCIATION FOR THE OTHER CHILD
354 Prospect Avenue
Glen Ellyn, Illinois

CHICAGO ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES
8820 S. Washtenaw
Chicago, Illinois

INDIANA:

INDIANA ASSOCIATION FOR BRAIN INJURED CHILDREN
225 N. Cornell Circle
Fort Wayne, Indiana

KENTUCKY:

KENTUCKY ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES
c/o I. Stuart Smith
102 Stivers Road
Louisville, Kentucky

JEFFERSON COUNTY PARENTS OF PERCEPTUALLY HANDICAPPED CHILDREN
c/o William Ryan
3930 Grandview
Louisville 7, Kentucky

MARYLAND:

MARYLAND ASSOCIATION FOR BRAIN INJURED CHILDREN
4802 Nurton Avenue
Baltimore, Maryland 21215

MASSACHUSETTS:

PERCEPTUAL EDUCATION RESEARCH CENTER
P. O. Box 84
Sherborn, Massachusetts

MICHIGAN:

DETROIT CHILDREN'S NEUROLOGICAL DEVELOPMENT PROGRAM
224 Fischer Road
Grosse Point 30, Michigan

MINNESOTA:

MINNESOTA ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES
Box 6391
Minneapolis 23, Minnesota

MISSOURI:

Mrs. Yates Trotter
910 E. University
Springfield, Missouri

MONTANA:
MONTANA CENTER FOR CEREBRAL PALSY AND HANDICAPPED CHILDREN
1500 N. 30 Street
Billings, Montana

NEW JERSEY:
NEW JERSEY ASSOCIATION FOR BRAIN INJURED CHILDREN
61 Lincoln Street
East Orange, New Jersey

NEW YORK:
NEW YORK ASSOCIATION FOR BRAIN INJURED CHILDREN
305 Broadway
New York 7, New York

OKLAHOMA:
OKLAHOMA COUNCIL FOR CHILDREN WITH LEARNING DISABILITIES
3739 S. Delaware Place
Tulsa, Oklahoma

ONTARIO:
ONTARIO ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES
306 Warren Road
Toronto 7, Ontario, Canada

PENNSYLVANIA:
PENNSYLVANIA ASSOCIATION FOR BRAIN INJURED CHILDREN
343 Locust Street
Coopersburg, Pennsylvania

RHODE ISLAND:
20 Elder Avenue
Riverside, Rhode Island

TENNESSEE:
MEMPHIS EDUCATION FOUNDATION
Box 17034
Memphis, Tennessee

TEXAS:
TEXAS COUNCIL FOR CHILDREN WITH LANGUAGE DISORDERS
4827 Chedder
San Antonio, Texas

HOUSTON COUNCIL FOR CHILDREN WITH MINIMAL BRAIN DAMAGE
5674 Edith Street
Houston, Texas

PROVIDENCE SCHOOL
900 College Avenue
Fort Worth, Texas

CHILD DEVELOPMENT CLINIC
University of Texas
Medical Branch
Galveston, Texas

TEXAS ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES
1532 Avenue B
Beaumont, Texas

ASSOCIATION FOR THE MINIMALLY BRAIN DAMAGED
6214 Woodland Drive
Dallas 25, Texas

VERMONT:
79 Lincoln Avenue
Rutland, Vermont

VIRGINIA:
2930 N. Oxford Street
Arlington 7, Virginia

WISCONSIN:
MILWAUKEE SOCIETY FOR BRAIN INJURED CHILDREN
6125 W. Lincoln Avenue
West Allis, Wisconsin

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