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ABSTRACT

The disagreement on terminology used to describe reading difficulties and to classify reading underachievers is illustrated. Some of the research findings on physical, intellectual, emotional, and educational factors which cause reading difficulty are described, with emphasis on replying to questions asked by parents and on clarifying some misconceptions held by lay persons and educators. It is emphasized that the causes of reading failure rarely occur in isolation, and therefore the study of the interaction effect of several factors becomes essential. The typical ex post facto studies of learners from 9 to 20 years of age work from effect to find causes. It is suggested that longitudinal studies, particularly when conducted by an interdisciplinary team, would be much more useful in providing accurate information about causes of reading failure. A bibliography is included. (CM)

CAUSES OF READING DIFFICULTIES-FACTS AND FICTION

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As we examine the literature of causes of reading difficulties, we feel as if we are one of the six blind men who described the elephant. Sometimes it seems as if we have had a corneal transplant only to discover that the cause of the blindness is not the clouded cornea. Instead, it is a lesion in the brain that not only interferes with sight but with reason.

Let us begin exploring our mythical elephant, remembering that we shall not be able to see him and hope that the lesion does not affect our thinking processes. The blind men in our poem were fortunate, because they knew that they were trying to describe a single animal, an elephant. Those of us who work in the area of remedial reading sometimes feel as if we are as blind as the wise men, as far as our state of knowledge goes. Sometimes we believe that we are attempting to deal with an entire menagerie. Yet there are many dedicated investigators who insist we are only dealing with an elephant. What confounds our problem even more is that the wise men who write about reading may specialize in ophthalmology, pediatrics, neurology, linguistics, psychology, education or literature.

Direct Causes Are Difficult to Identify

A Tower of Babel exists about terminology that makes it difficult to know if people speaking and writing about reading difficulties are really communicating. In commenting on this situation, Harris (1968, pp. 159-161) writes, "Thus a child may be labeled a case of reading disability or deficiency, a retarded reader, an underachiever in reading, a case of specific or developmental dyslexia, a case of specific language disability or perceptually handicapped. The one common element among these terms is the agreement that the pupil's progress in reading is unsatisfactory in terms of his potential. Beyond this, there is wide disagreement not only regarding terminology but also on the significance of various etiological factors and on the appropriateness and efficacy of different methods of treatment." Thus, we cannot even enjoy playing the great American game of labelling something and thereby thinking that we know what that something is.

I agree that there is no one label that is appropriate for all individuals whose reading progress is unsatisfactory in terms of their potential. At the risk of contradicting myself, I shall, in this paper, refer to such individuals as underachievers in reading, regardless of what other problems they may or may not have.

Let us briefly examine one of the better known attempts at categorizing

remedial reading cases. Rabinovitch (1962, pp. 74-75) suggests three major categories that have grown out of his diagnostic studies:

1) Primary reading retardation where the cause is biological, and there is no brain damage. "The defect is in the ability to deal with letters and words as symbols, with resultant diminished ability to integrate the meaningfulness of written material. The problem appears to reflect a basic disturbed pattern of neurological organization."

2) Secondary reading retardation. The child possesses normal capacity to learn but this capacity has been vitiated by such external factors as emotional blocking, psychoses and limited opportunity for schooling.

3) Brain injury with reading retardation. "Capacity to learn to read is impaired by frank brain damage manifested by clear-cut neurological deficits."

These appear to be such clear-cut categories that, at first, we feel at least we can classify our reading underachievers into neat categories. Rabinovitch continues, "It is more difficult to be certain into which group a particular case fits than it is to recognize that there are three groups."

Perhaps the best formulation of causes of underachievement in reading was described over twenty years ago by Helen Robinson(1946). She attempted to identify and measure the various causal factors in a group of twenty-two severely retarded readers. Robinson acted as psychologist and reading technician and obtained the help of the following specialists: a social worker, a psychiatrist, a pediatrician, a neurologist, an endocrinologist and a reading specialist. She based her conclusion as to whether or not a given anomoly was causal if upon correction or use of appropriate compensations, improvement in reading resulted. Robinson found that maladjusted homes or poor interfamily relationships were contributing causes in 54.5 percent of the cases. Visual anomalies were found in 73 percent of the twenty-two cases, but were considered causes of reading failure in only 50 percent of these cases. There were significant emotional problems in 41 percent of the 22 cases studied, with 22 percent causal. Inappropriate teaching methods appeared to be the cause of reading failure in 18 percent of 22 cases (p. 226).

Alexia or some other neurological problem was considered a cause of reading failure in 18 percent of the cases. Because of the current interest in neurology and reading it is interesting to note what Robinson wrote in 1946:

> The present study shows that many pupils who had made little or no progress in learning to read before this diagnostic study, were not victims of alexia in the judgment of the neurologists. Moreover, a few cases diagnosed as alexia made progress beyond the level expected of a child with such a handicap.

Speech and functional auditory factors were found to be contributing causes of reading disability in 18 percent of the 22 cases; dyslalia (an articulatory defect) was considered a cause in 14 percent of them.

Robinson (p. 220) concluded that those most seriously retarded in reading evidenced the greatest number of anomalies, whereas the least retarded presented the fewest. Another of Robinson's conclusions is important to bear in mind when reading studies about the causes of reading difficulty: when a group of specialists tried to evaluate the anomalies for each subject, certain of the anomalies had no direct relationship to the reading problem. Furthermore, there was no complete agreement among her experts as to which factors caused reading retardation. Today there is still lack of agreement among experts.

Robinson's study provides many valuable clues, but, because of her small sample and her research design, her results must be regarded as tentative. It is most unfortunate that someone has not done a follow-up study. The disagreement concerning the potency of various causes reported in the findings of Robinson's study was reinforced by different investigators. Such disagreements may stem from the research design used by the various investigators as well as the nature of the population studied. Other factors that might account for differences in findings are teaching methods and socioeconomic status. Disagreement may also be due, in part, to the use of different tests and varying norms. For example, in Robinson's study the ophthamologist considered hyperopia (far-sightedness) of less than +1.50 diopters did not need correction, whereas Eames (1938, pp. 10-13) maintained that hyperopia between +0.50 to +1.50 diopters needed correction.

Bearing in mind that studies of apparent causes of reading retardation are of limited value if they are not checked out experimentally, that we must have valid instruments for our research, that we must agree on our norms, and that our samples must represent some known universe, we still have problems. First, there is Robinson's finding that those most retarded in reading evidenced the greatest number of anomalies. Even if we thought we knew all of the causes of reading failure, these causes rarely occur in isolation; consequently we get an interaction effect. For example, if a child has emotional problems, suffers from binocular incoordination and was brain damaged at birth, all of these in combination may be a greater handicap in learning to read than if any one occurred singly. Second, with our present state of knowledge we are not certain we can measure some of these anomalies. Maybe the brain damage can account for the emotional problem; or was the emotional problem caused by reading failure? Perhaps there has been a self-remission of the brain damage but the child still behaves as if he were brain damaged. His condition may be further aggravated by the fact that his first-grade teacher excused herself from trying to teach him to read because he was such an obnoxious little brat with a damaged brain and, you know, no one can be expected to teach such a child anything.

How many etiological factors do we have operative? How much are they interacting to produce different effects than any one would

have by itself? Would the teacher have tried to teach the child to read if he had not been obnoxious, although still brain damaged? Would she have been able to use the appropriate methodology? We cannot answer these questions.

When we attempt to get at causes of retardation in reading we typically study cases such as the one described above when they are from 9 to 20 years of age. We are working from effect and trying to find causes; this type of research is known as ex post facto research. Ex post facto research has severe limitations for the generation of explanations. Because of these limitations we can expect that this methodology would result in disagreement and contradictions. (For a more complete discussion of ex post facto research see Kerlinger [1965], Chapter 20).

Some Physical, Intellectual, Emotional, and Educational Factors

Let us consider briefly some specific physical "causes" of reading difficulties. The parents in our audience are doubtlessly curious about child birth and reading. Probably the most comprehansive study on this point was made by Kawi and Pasamanick (1959). These two researchers found that the following conditions differentiated a group of underachievers in reading from so-called normals: (1) Premature births, (2) Toxemias of pregnancy(preeclamsia, hypertensive disease, and (3) bleeding during pregnancy (before third trimester, placenta praevia, premature separation of the placenta).

Let us examine the role that vision plays in reading. In a number of studies, specific visual defects have been reported as having a negative effect on successful reading: farsightedness, astigmatism, binocular incoordination, and fusion difficulties (Spache and Tillman, 1962; Robinson, 1968). Parents are given a false sense of security when they rely on the visual test, the Snellen or big E, typically administered in most schools. It is useful as a screening device for truck drivers, but not for reading problems. The Snellen eye chart primarily identifies people who are nearsighted. As a matter of fact, nearsighted pupils tend to be better readers than those who are farsighted (Strang, 1968, p. 18). Vision testers often miss important visual handicaps by making their tests at 20 feet rather than at the reading distance. Visual acuity at a reading distance is often differnt from far point visual acuity (Eames, 1962).

Another of the fictions about vision is that kindergartners' eyes are too immature for them to start to learn to read. Eames (1962) found children at five years of age had more accommodative power than at any subsequent age. The poorest near visual acuity found among the pupils studied was quite sufficient for reading the usual texts. It must be for other reasons than vision that reading should not be taught in kindergarten.

Research on the relationship of specific visual anomalies to reading disability are contradictory. Some of these contradictions may be explained in part in terms of the ability of the child to compensate

for the defect, the age of the child, his emotional make-up or may indicate a central dysfunction which is reflected in the motor responses. "Visual factors may be directly related, contributory, or coincidental to the reading disability. The relationship of patterns of visual defects to visual perception and to specific reading disabilities needs to be studied further." (Strang, 1968, p. 20.)

Poor hearing, while relatively infrequent in reading disabilities, may be very important when it occurs. There is some evidence that children with high-frequency losses tend to fail in the primary grades. (Henry, 1947). A large proportion of the consonant sounds such as p, s, t, b, k, v, c, fl, s, th are found among the high tones (Spache, 1963, p. 113).

In addition to auditory acuity for learning to read are auditory memory and auditory discrimination, which are also necessary for progress in word recognition (Wepman, 1960). Walters and Kosowski (1963) indicated that unless retarded readers are highly motivated, they may pay less attention to reading because auditory discrimination requires so much effort on their part.

We can say with some assurance that reading underachievers frequently show marked deficiencies in auditory discrimination; consequently, giving them a heavy dose of phonics in the beginning stages of remediation may, in certain cases, aggravate the situation.

Endocrine gland defects and deficiencies are less common among underachievers in reading, but when present, create severe problems if left untreated. Eames (1962) reports that the majority of his endocrine reading difficulty cases are of the hypo-thyroid type, especially mild to moderate cases which had been undetected for some time.

The debilitating effects of chronic poor health require careful evaluation. Malnutrition, asthma, rheumatic fever may be involved with reading problems. Any condition resulting in lowered energy may interfere with concentration and effort in learning to read (Harris and Roswell, 1953).

Intellectual Factors

Now let us briefly look at intellectual and emotional considerations. A nice way to avoid teaching a child to read is to decide that the child is stupid. Most of the group intelligence tests beyond third grade require the pupil to read, and, if he can't read the test, he will get a low score, particularly on the verbal part. (McLaulin and Schiffman, 1960). If the child receives no help with his reading he will continue to do poorly on group intelligence tests, in terms of his own ability, as he advances through the grades. Secondary school teachers or counsellors may fail to realize that a mediocre verbal score on a group intelligence test might be influenced by poor reading achievement. If this is the case, the pupil may be counselled out of aspiring to go to college. Two years ago twin brothers were brought to our reading clinic because they were not doing as well as their peers at a well-known suburban high school. Their older

brother and sister were always honor pupils, but somehow the twins were never able to do top-notch academic work. The records from the school showed their I.Q.'s to be at the low end of the normal range on a paper and pencil test. The school counsellor had recommended the twins be prepared for a trade. We administered an individual intelligence test to the twins and they scored at the 99th percentile. We told the twins, their mother and the school counsellor of our findings and began remediation. Within one semester we had them functioning well above grade level in reading and study skills. As part of the study skills instruction we taught them how to beat the system. The following year they were placed in the top section of the academic track.

Another question relating to a child's ability to learn to read is often asked: Are there some children who are more hand minded than eye minded? The answer is "yes". The corollary question is usually, "Are such children stupid?" The answer within the context of remedial reading is "no". There is a substantial proportion of children seen at reading clinics who have convinced themselves through repeated failure in learning to read that they are dumber than their peers. Sometimes this self-concept is fostered by parents and teachers. In a sound remedial procedure one of the first things the clinician must do is to convince the student that he can learn to read. In some instances, the clinician has a difficult time convincing the student that he is not stupid.

Let us return now to the first question since it is an important one and deserves more than a "yes" or "no" answer. I would estimate that about 85 percent of the children of normal intelligence can learn to read by almost any reading method currently in use in the public schools. The remainder will have difficulty in learning to read for all of the reasons we have talked about today (plus some others which time does not permit us to discuss). In addition, they may have specific styles of learning to read which evidently were not used with them.

One of the important aspects of a diagnosis is to discover how the child can learn; this is particularly true with severely retarded readers or non-readers. Among these severely retarded readers and non-readers there are some who seem to be able to learn best with their hands; that is, using their fingers to trace the words while saying them. This method is called the Fernald Kinesthetic technique. Of course, tracing is merely the beginning stage of the treatment and as soon as possible we eliminate the tracing.

A further question frequently asked by parent groups is: Do some children have a mental block toward learning to read? I suppose most of us have mental blocks toward things that we don't do well. In addition, there may be other dynamics at work that my colleagues in psychiatry could supply. It may be that some children use failing to learn to read as an attention getting device. Have you ever heard some teachers express concern about a child who is not learning to read? Most teachers are quite dedicated and I am sure that at the beginning of each school year practically every elementary school teacher in the United States vows that she will have every child in her classroom up to grade level in reading.

I might also say that it is not atypical of middle class parents to discuss little Johnny's reading problems in not so sotto voce. To help things along, Johnny is compared with a successful sister in the not so ego building process.

Many parents try to help their underachievers in reading. My experience from hundreds of conferences with parents is that such help usually results in both the child and the parent becoming upset. I am sure that if the child didn't have a block toward reading, after a few evening sessions of tears and screaming, he would have one. I become concerned about the guilt and even hostility toward the child that results from such encounters. My advice to parents is not to try ro tutor their children unless both can feel comfortable in the situation.

Closely related to the mental block question is the following: Do under-achievers in reading display severe emotional problems and are these emotional problems the cause of their not doing well in reading? I would say that most of the cases I have seen do have emotional problems about their reading. There are enormous pressures put on the child to learn to read by parents and society. As the child progresses through the grades he is likely to become more and more frustrated if he cannot read his assignments. The cases that cause me more concern are those who are not upset about their reading. For the most part, these are the ones that have given up and I know that if they really feel that way I am going to have a difficult time teaching them to read.

As far as the causal relationship between reading and emotional problems is concerned, in most cases I would say that it resolves itself into the well-known question: Which comes first -- the chicken or the egg? I know of no conclusive research on this point. This is not to say that this phase of diagnosis has been neglected. Almost everyone who writes on the subject offers a different list of presenting symptoms and a different explanation of their psychodynamics. Nevertheless, in the reading clinics across the United States clients with emotional problems are being helped to learn to read. Usually, if the emotional problems interfere or are still severe at the conclusion of reading therapy, the clinician will recommend mental health therapy for the child.

Another popular fallacy is that there wouldn't be any reading problems if the schools would quit using the sight method and teach the children phonics. First of all, I know of no public schools in five states in which I have worked where phonics was not being taught. Of course, this does not meet the issue raised, for the phonics proponents believe that we should begin reading instruction with phonics. I don't agree that reading should be restricted to figuring out the pronunciation of words to the neglect of such reading skills as comprehension. I do agree, however, that more phonics should be -- and could be-- taught systematically in the first grade in order to make children independent readers earlier. Unfortunately, the authors of many reading textbooks were influenced by some research

conducted in 1937 (Dolch and Bloomster) where the investigators found that children whose mental ages were below seven years of age were able to do little or nothing on a phonics test. This point of view prevailed despite Gates' research (1937) in which he sensibly reasoned that the child's reading progress is not dependent solely on his mental ability. He concluded that such things as the specific method and materials and the speed with which pupils are required to move along, all influence the progress of the child.

More recently we have evidence from the First Grade Studies (Bond, 1966) supporting my point of view regarding the teaching of phonics, plus expressing other important points: "There is no one method that is so outstanding that it should be used to the exclusion of the others." Just two more points from the First Grade Studies and then we shall have to move on: There was greater difference in pupil achievement among teachers using the same method than there was between methods. There was greater difference in pupil achievement among schools than among methods. In other words, the teacher and the school do make a difference in how much the children achieve in reading than the methods examined in the First Grade Studies.

Dyslexia, Perceptual handicaps, minimum brain damage and other fashionable terms.

One of the "in" terms used today in discussing reading problems is dyslexia. On February 20, 1969, an article appeared in the New York Times (p.26) with a head stating, "Scientists Assay Dyslexia Clues. Origins of Reading Disorder Are Sought by Committee." I shall read only extracts from the article. "Dyslexia, a catch-all term for numerous reading disorders in children, continue to perplex parents, physicians and educators who are trying, with little success to learn why so many Johnnys can't read. About one in seven school age children in the United States suffers some kind of dyslexic malfunction Dr. Charles A. Ullman, a psychologist, said early this week. Dr. Ullman...is executive director of the National Advisory Committee on Dyslexic and Related Reading Disabilities."

"In the past, most experts guessed that about 15 percent of all children in the nation could not learn to read because of fundamental malfunctions in either their physical or emotional makeup.

"Now, five freshly completed studies corrorobate that estimate, Dr. Ullman said." The article continues: "After six months of discussion, there is still one hurdle the experts have not been able to overcome -- how to define dyslexia. The psychologist, the neurologist, the educator, the audiologist, and the opthalmologist /sic/ all view dyslexia from different grandstands.

"A few points, however, the experts do agree on: dyslexia is not a disease in the pathological sense; it does not mean a child is emotionally disturbed; it does not mean his education has been inferior; and it does not mean the child necessarily has a learning problem."

I can understand how the various investigators might obtain divergent figures as to the incidence of dyslexia. His education may not have been inferior, but his teacher may have been unable to identify his particular style of learning to read. I fail to comprehend the committee's agreeing that the child does not have a learning problem. If a child is a non-reader, or is severely retarded in reading, I definitely believe that he has a learning problem and is usually emotionally disturbed about it some degree.

Let us continue with the last paragraph of the article, as it summarizes the confusion among the various writers on dyslexia so well.

"The fundamental causes of dyslexia also are obscure. Some guess a genetic factor may be involved while others look to neurological, psychological physiological or socioeconomic reasons."

In an outstanding collection of readings on dyslexia, Cruickshank (1968, p. 84) points out in his article the confusion about defining dyslexia:

> "...If a child diagnosed as dyslexia in Philadelphia moved to Bucks County, 10 miles north, he would be called a child with a language disorder. In Montgomery County, Maryland, a few miles south, he would be called a child with perceptual disturbances. In California, he would be called either a child with educational handicaps or a neurologically handicapped child. In Florida and New York State, he would be called a brain-injured child. In Colorado, the child would be classified as having minimal brain dysfunction.
>
> "Since 1955 forty-three different terms, generally referring to the dyslexic child, have appeared in the literature. Fortunately, although the name for the disorder may change, the child remains the same..."

I am inclined to agree with Harris (1968, p. 169) that <u>dyslexia</u> is a term used primarily by medical specialists to define a subgroup within the group referred to by the term <u>reading disability</u>.

One of the questions frequently raised in connection with dyslexia is: What if my child is left-handed or hasn't developed a consistent choice of hands, how will this affect his reading? While this notion is closely allied with the concept of cerebral dominance, which we shall discuss in a minute, all I can say in answer to the question is, that I doubt that it will affect his reading. Some investigators agree with Zangwill (1962, p. 111) "That an appreciable proportion of dyslexic children show poorly developed laterality and that in these there is commonly evidence of slow speech development..." Even Zangwill speculated why some poorly lateralized children learn to read well. Such writers as Balow (1963) fail to find any relationship between laterality and poor reading, based on a survey of an unselected

population. Benton (1962; pp. 81-102) expresses some doubt about the relationship of directional sense and expressed the opinion that when it does exist, it may be related to age, intelligence or other syndromes. In a summary of research, Zeman (1967) cited only three studies out of fourteen that reported significant relationships between laterality and reading.

When speaking to parent groups, I am frequently asked about some new method of diagnosis and treatment of remedial reading that has been reported in the popular press. Time does not permit me to discuss all of them that I am aware of; however, I shall briefly mention one that has attracted a great deal of attention. Carl Delacato (1959, 1963, 1966) emphasizes the attainment of developmental stages in neurological maturity resulting in cerebral dominance. In his second book (1963), Delacato elaborated on his theory of neurological organization and advocated the importance of creeping and stylized walking activities for the development of dominance and the prevention of language disorders.

In a criticism of Delacato's theory, Glass and Robbins (1967) analyzed fifteen studies offered by Delacato in his three books as support for his theory. Without exception, the studies cited by Delacato as a "scientific appraisal" of his theory of neurological organization were demonstrated to be of dubious value. The only two studies evaluating this theory were conducted by Melvyn P. Robbins (1965, 1966). Neither of his studies supported Delacato's theories, either with second-grade pupils or with retarded readers.

Conclusions

What I have done is present to you some of the facts and fiction concerning causes of reading difficulties, including my own point of view. Because of time limitations, I have not been able to discuss these causes in depth. Nor have I been able to discuss some other important topics related to suspected causes of reading difficulties. This shall have to await another conference.

As we have seen, there are many causes of underachievement in reading interacting with each other so that it is extremely difficult to isolate them and determine which is cause and which effect. Instead of engaging in ex post facto studies, we need to carefully design longitudinal studies such as Katrina de Hirsch's (1966) before we shall be able to speak with certainty about causes of reading failure. Such longitudinal studies will be most profitable if they are conducted by an interdisciplinary team. From what we know, such research will require more expertise than any one individual can provide.

Whether we are engaged in research or in remediating the child's reading problems, we must be careful about pinning labels on him. Such labels have a tendency of becoming self-fulfilling prophecies. At our clinic at the Ferkauf Graduate School we have children referred

to us from hospitals, social agencies, other reading clinics and schools with all sorts of labels, such as specific dyslexia, perceptually handicapped, alexia, autistic, and what have you. Regardless of such labels we have to find out what it will take to teach him to read and get on with the job. We may not cure his dyslexia, but we do teach him to read.

In closing I wish to point out that we should never become smug about what we now know about the causes of reading difficulties. In the inexorable advance of science, today's fact may become tomorrow's fiction.

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