

**DIAGNOSING LEARNING DISABILITIES:
AN INTEGRATED APPROACH**



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DIAGNOSING LEARNING DISABILITIES:
AN INTEGRATED APPROACH

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In Partial Fulfillment
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Master of Arts

by
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To the Graduate Council:

I am submitting herewith a Research Paper written by Sherah H. Shedden entitled "Diagnosing Learning Disabilities: An Integrated Approach." I recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Arts, with a major in School Psychology.

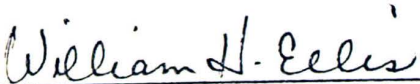

Major Professor

We have read this research paper
and recommend its acceptance:


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TABLE OF CONTENTS

CHAPTER	PAGE
1. INTRODUCTION	1
2. REVIEW OF THE LITERATURE	6
Historical Perspective	6
The Discrepancy Component.	11
The Process Component.	18
The Exclusionary Component	22
3. CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE DIRECTIONS IN DIAGNOSIS.	25
BIBLIOGRAPHY	32

Chapter I

INTRODUCTION

Since its inception, the field of learning disabilities has been embroiled in controversy which has led to nothing short of complete confusion in diagnosis. Actually, the inconsistency and lack of consensus among professionals as to *who is* and *who is not* learning disabled has been due in part to the complex nature of the disability, the heterogeneity of the group (Myklebust, 1983), and to the evolution of the field from a variety of disciplines and theories regarding etiology (Lerner, 1985; Reynolds, 1986; Rewilak & Janzen, 1982). In addition, socio-political, financial, and practical considerations have had great influences upon who is ultimately determined to be learning disabled (Keogh, 1983; Warner & Bull, 1986).

The controversy, which began as a search for a satisfactory label for this population of children, soon spilled over into debate regarding an acceptable definition and identification procedures (McNutt, 1986). The critical question remains: How can learning disabled children be effectively distinguished from regular education children, slow learners, and other handicapped populations such as the seriously emotionally disturbed and educable mentally retarded (Wilson, 1985)?

Although the term learning disabilities did become widely accepted (Schere, Richardson, & Bialer, 1980) and although a definition proposed in 1968 by the National Advisory Committee on Handicapped Children (NACHC) was adopted and incorporated into Public Law 94-142, (The Education for the Handicapped Act of 1976) (Mercer, Hughes & Mercer, 1985), agreement among professionals within the field has still not come (Epps, Ysseldyke, &

Algozzine, 1983). The literature has been replete with attempts at clarifying the old but widely used NACHC definition (Schere et al., 1980) and writing new definitions. The primary criticism has been that the NACHC definition is too vague, subjective, and redundant (Reynolds, 1986). Many think a new definition is essential for resolution of the fundamental problems which engulf the identification process (Rewilak et al., 1982). The NACHC definition reads as follows:

Children with special learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written languages. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing, or motor handicaps, to mental retardation, emotional disturbance, or to environmental disadvantage. (U.S. Office of Education, 1977, p. 42474-42518).

A more precise definition may indeed be a necessity; but a more fundamental problem has been that the operational definition, the procedures for identification, have not been uniformly implemented by state educational agencies. Although identification procedures were stipulated in the Federal Register, the methods by which states could accomplish this end were left to their discretion (Reynolds, 1986). Consequently, great confusion and inconsistency from state to state has resulted. Reynolds (1986) reported disparity in the percentage of children identified as learning disabled ranging from 2% to 35% across the country. Leaving the interpretation to state and local authorities has produced great instability in

diagnosis (Mann, Davis, Boyer, Metz & Wolford, 1983).

The operational definition for learning disabilities was included in a separate section of the PL-94-142 regulations. It outlines the following procedures:

A child has a specific learning disability if (1) the student does not achieve at the proper age and ability levels in one or more of several specific areas when provided with appropriate learning experiences, and (2) the student has a severe discrepancy between achievement and intellectual ability in one or more of the following areas: (a) oral expression, (b) listening comprehension, (c) written expression, (d) basic reading skill (e) reading comprehension, (f) mathematics calculation, and (g) mathematics reasoning. (cited in Lerner, 1985, p. 7).

Mercer et al. (1985) reported that upon close examination of state definitions and identification criteria two basic differences emerge:

(a) basic psychological processes are omitted in the identification criteria, and (b) in the identification criteria the academic and language problems are interpreted within the context of a discrepancy factor. Thus, according to PL-94-142 criteria, the discrepancy and exclusion factors are basic to defining learning disabilities, whereas the psychological process factor remains optional (p. 46).

In an effort to reduce the numbers of learning disabled children identified, states have increasingly adopted statistical or mechanical models as opposed to clinical and psychometric models to meet the discrepancy criteria set forth in PL-94-142 procedures (Smith, 1982). These models have far too often become the only criteria considered (Bateman, 1985), and have been attractive to state educational agencies because they are expedient,

less expensive, and effective in setting mathematical limits on the numbers of children identified (Reynolds, 1986). Essentially, the process of identification has been reduced to administration of an intelligence test and an achievement test and to plugging those scores into a formula to determine quantitatively the difference between ability and achievement (Smith, 1982).

This practice has been severely criticized primarily because it is both over-inclusive and under-inclusive (Rewilak et al., 1982). It has been shown that this method does not consider any alternative reasons for academic failure and therefore results in identification of nonlearning disabled children (Rewilak et al., 1982). Conversely, by failing to allow for the complexities of the disability which may preclude valid testing of learning disabled children, many are left unidentified (Bateman, 1985).

Other criticisms with the identification procedures concern the exclusionary component and the process component. The process component was actually never included in the procedures, but its presence in the definition has prompted much debate as to its importance in identification. The problems have been that the definition is vague and efforts to relate basic psychological processes to the research have been confusing. Also there has been minimal agreement as to how these processes can be measured and as to how they affect academic achievement (Schere et al., 1980). Similarly, the exclusionary component has been considered to be vague and confusing. It essentially outlines those qualities which exclude a child from being identified as learning disabled (Mercer, Forgnone, & Wolking, 1976). Research has failed to show definitive differences between learning disabilities and other learning problems which are the result of other handicaps or environmental causes (Kavale & Forness, 1987).

Perhaps a new definition would resolve the diagnostic confusion. It

seems more likely, however, that consistent implementation of straight forward procedures utilizing the assets of a combination of diagnostic models would result in more accurate diagnosis.

Chapter 2

REVIEW OF THE LITERATURE

Historical Perspective

In order to understand the confusion currently surrounding the diagnostic process, it is necessary to understand the issues which have historically afflicted the field. According to Lerner (1985), the term "learning disabilities" was first introduced in 1963 by Samuel Kirk as he spoke to a group of concerned parents in Evanston, Illinois, who were interested in forming a national advocacy organization. The children considered were of average intelligence but were nevertheless impaired in the academic setting due to developmental discrepancies and did not fit any other existing category of exceptionality (Kirk & Gallagher, 1983). Until that time, a variety of terms had been used to refer to this group of children including brain injured, dyslexic, minimal cerebral dysfunction, minimal brain dysfunction, specific learning disorders, and perceptually handicapped, to name only a few (Lerner, 1985). Cruickshank noted that more than forty terms have been used in the literature to name these same children (cited in Epps, 1982). All these terms were controversial and/or unacceptable to parents or professionals for various reasons (Cruickshank, 1981).

Although the term learning disabilities was new, the concept was not novel or original (Hideman, 1985). The variation in terminology actually reflected a long history and diverse contributions of several disciplines

including Education, Medicine, Psychology, Language and several others of lesser significance (Lerner, 1985). The origins can be traced as far back as the 1800's and were rooted in the search by physicians such as Paul Broca, Carl Weirneck, and others for the localization of brain functioning. Through their study of aphasics, much was learned regarding language functioning and perceptual impairment (Lerner, 1985).

According to Lerner (1985), the meshing of scientific study and clinical application along with parental pressure and influence accelerated the establishment of the learning disabilities field. Samuel Orton and Alfred Strauss in the 1930's and 1940's developed theories regarding etiology and educational teaching methods to accompany them (Lerner).

Epps (1985) noted that the field of remedial reading paralleled the learning disabilities movement and contributed to it significantly. It was further noted that reading specialists as early as the 1930's recognized that there were children of normal intelligence who were still unable to read. These specialists set out to develop formulas for discriminating slow learners who had less potential. In the 1960's, the discrepancy notion between ability and achievement, as we know it today, was popularized by Barbara Bateman (Epps, 1985).

The establishment of learning disabilities programs in the nation's schools was the final step toward solidification of the learning disabilities field as a separate discipline (Lerner, 1985). William Cruickshank in the early 1960's provided the final ingredient, a pilot program and actual plan for implementation of teaching programs in the classroom (Lerner).

The legislative history including adoption of a definition, inclusion of learning disabilities as a handicapping condition, and adoption of procedural criteria has been both long and complicated. Therefore, only the highlights

will be addressed. The first definition of learning disabilities appeared in a 1962 textbook entitled Educating Exceptional Children and was introduced to a group of parents and professionals in 1963 by the author Samuel Kirk (Hideman, 1985). As a result of this meeting, the first national advocacy group, The Association for Children with Learning Disabilities, was founded (Lerner, 1985). This was a significant event. As a result of their efforts, learning disabilities became recognized, and legislation was adopted in various states supporting programs for these children.

In 1968, The National Advisory Committee for Handicapped Children (NACHC) of the U.S. Office of Education, inherited funding responsibilities for special education programs for learning disabled children. At that time defining learning disabilities became a necessity. The challenge was to satisfy funding agencies as well as educators (Epps, 1985). A report from this committee revealed that seven states had already enacted legislation providing programs for this handicapped population and further reported a prevalence rate between one and three percent of school age children were possibly affected by these difficulties (Hideman, 1985). The definition drafted by the committee was the one previously cited. This definition was used as the basis for the Learning Disabilities Act in 1969, PL-91-230, and was later incorporated into the Education for All Handicapped Children Act, PL-94-142, in 1975 (Hideman, 1985).

In an effort to more precisely define learning disabilities, Congress proposed a definitional change which would have included a discrepancy between ability and achievement and would have been determined by a formula (Epps, 1982; Hideman, 1985). In hearings which followed, public opinion was overwhelmingly negative and the use of a formula was severely criticized. The discrepancy criteria was deleted, and the 1968 NACHC

definition remained unchanged. The identification procedures, however, included the discrepancy statement without a formula (Epps, 1982).

After decades of debate and the adoption of a Federal definition, the controversy should have been silenced. Regrettably, Banas (1984) found just the opposite in a review of the literature from 1970 to 1980. A substantial amount of the learning disabilities literature is still addressing these same issues, and increased doubt concerning the definition of learning disabilities has emerged as a definite trend (Banas, 1984). The state of affairs was vividly reflected by the conclusion of the efforts of the National Joint Committee for Learning Disabilities (NJCLD). This committee, comprised of six organizations, assembled to draft a new definition, one which would be acceptable to all the disciplines involved in the field (Hammil, Leigh, McNutt, & Larsen, 1981). The Association for Children with Learning Disabilities became dissatisfied with the new definition and broke away from the group. ACLD proposed their own separate definition (Hammil et al., 1981).

The problems which currently plague the learning disabilities field are not isolated to conflict over definitions and inadequate procedures but are intertwined with economic considerations as well. Although the availability of funds for special programs has decreased in recent years, the incidence of learning disabilities has steadily increased and has far surpassed original estimates of Congress and advocacy groups. Smith (1982) suggested that this problem should have been anticipated because original estimates given to Congress were actually never based in fact or research, but were arbitrarily set. Prevalence estimates were "large enough to document the existence of a significant problem worthy of federal intervention" but were also small enough so not to frighten Congress into deleting learning

disabilities from PL-94-142 (Smith, 1982, p. 104). At that time, learning disabilities were considered a low incidence handicap (Bryan, Bay & Donahue 1988) with estimates in 1973 of approximately .2% of the school age population (Epps, 1982). By 1980, the rates had risen from 2% to 32% of the total handicapped population and accounted for 3% of all school aged children (Smith, 1982). In a 1986-1987 Education Department study, which is to be released in the Tenth Annual Report to Congress, Viadero (1988) reported that the prevalence of learning disabilities jumped an unbelievable 2.9% in one year and now accounts for 43.7% of the total handicapped population. Similarly, Bateman (1985) noted that although school enrollment has dropped by 11½%, learning disabilities have increased 120% in recent years.

Several reasons were cited by Viadero (1988) as possible explanations for the increased incidence of learning disabilities. Supplemental support funds for disadvantaged and bilingual programs are drying up. Shifts in categories to more desirable and less stigmatizing ones like learning disabilities may be a factor. It was noted that 3.2% fewer children were labeled mentally retarded in 1986-1987. The strengthening of academic requirements may have increased pressure on teachers to refer difficult children. It has also been suggested that the use of a severe discrepancy may not be discriminating enough and is allowing certification of many non-learning disabled children (Ferrel, 1988). Moreover, it is possible that true incidence of learning disabilities may have actually increased in the past decade due to increased survival of premature and ill babies, increased drug use and abuse, and increased levels of toxins in the environment.

The learning disabilities concept began as a vague recognition that there are children who, in spite of adequate intelligence, cannot learn.

It has evolved into a highly recognized and prevalent disabled population. Historically, the field has been wrought with difficulties regarding definition and identification procedures. Currently these problems remain unresolved.

The Discrepancy Component

The statistical or mechanical model has become increasingly popular with state educational agencies as a procedural method for implementing the federal severe discrepancy criteria in diagnosis of learning disabilities (Epps et al., 1983). This model essentially involves the application of statistical formulas in determining the difference between potential ability—however that is best estimated—and a measure of academic achievement (Smith, 1982). Academic deficits are interpreted within the context of a discrepancy factor (Mercer et al., 1985). It is interesting that, although the concept was originally rejected by professionals, it has emerged as the primary focus of evaluation in many instances (Berk, 1983; Epps, 1982).

Four methods for quantifying a severe discrepancy have primarily been employed (Cone & Wilson, 1981). All of these methods, including deviation from grade level, expectancy formulas, standard scores, and regression equation methods, have inherent weaknesses and have been criticized because of their mathematical inadequacy (Reynolds, 1981).

Although there is a trend toward less usage (McNutt, 1986), deviation from grade level has been the most frequently used method for determining a discrepancy (Wilson & Cone, 1982). This method constitutes a determination that the child is functioning below his age appropriate grade level by one to two and one half years (Reynolds, 1986). A constant level of measured deviation may be used for each grade, or a graduated deviation from grade level may be used as grade placement increases (Cone & Wilson, 1981). Criticisms have been that this method discounts the number of years

in school and the gradual increase in homogeneity of achievement at older levels. Identification of too many students at the 80-90 IQ level and fewer at the 100 and above level has also been a problem (Reynolds, 1981; Cone et al., 1981).

Expectancy formulas have been the most frequently used formulas. The trend recently, however, has been away from this method (McNutt, 1986). The Harris formula, (Expectancy Age = $\frac{2MA+CA}{3}$), which was proposed for inclusion in the Federal definition, or one similar, has been the most commonly used formula (Cone et al., 1981). The concept was to determine a severe discrepancy between mental ability and academic achievement. Criticisms of these methods have been that they over-represent children under 8 years and slow learners (80-90 IQ); and fewer at 100 IQ and above; and discount number of years in school and standard error of measurement (Reynolds, 1981).

Standard scores have been lauded as superior to the previously cited methods because they estimate true differences; take into account mental ability, increased range and variability of achievement at upper grades; and standard error of measurement (Reynolds, 1981). They allow for comparison across age, grade, and tests (Cone et al., 1981). Standard score values are obtained on an intelligence test and on a test of academic achievement. If a comparison of scores is discrepant by one to two standard deviations, the deficit is significant. Criticisms of this method have been that it does not take into account number of years in school or comparability of norm groups. Regression toward the mean has been identified as another problem with this method, resulting in over-identification of bright students and under-identification of others in the middle and lower ranges of intelligence (Reynolds, 1981).

Proponents of the statistical model support its use for a variety of reasons. Reynolds (1986) noted that objective statistical practice should accompany clinical judgement. Furthermore, the severe discrepancy was the only criteria agreed upon by professionals during legislative hearings. Formulas are most effective in meeting this federal procedural criteria.

Others have suggested that the research simply does not support the clinical model as a better or even as good a method as statistical approaches (Reynolds, 1986). Implied in the clinical model is the idea that there are observable and noticeable signs of the underlying disorder which can be isolated by an able clinician (Smith, 1982).

In Sadler's review of the literature (cited in Smith, 1982), it was concluded that perception could adversely affect clinical judgement. The research showed that as the number of informational pieces accumulated, accuracy in diagnosis declined. This is particularly problematic for diagnosing learning disabilities because there are typically hundreds of pieces of information which need to be processed and remembered. Another problem was that the examiner's first impression, based on the referring person's information and perception of the child's specific problem, colored all other information. This was true no matter who referred the child, and whether or not the same symptomatic behaviors were observed by the examiner. Also, confirming evidence of the original hypothesis was more likely to be considered whereas there was a tendency to ignore nonconforming evidence. More easily interpreted data such as test scores were shown to influence to a greater extent the outcome than other verbal information which was no less valid. Conversely, test data obtained from less reliable instruments was considered with the same importance as data obtained from more reliable instruments. Another concern was that diagnosticians simply were not

sensitive enough to normal variability within the population. This often leads to identification of problems when, in fact, characteristics are within an expected range. It was suggested by Goldberg (cited in Smith, 1982) that the degree of training and experience of the diagnostician actually had relatively little effect on the accuracy.

Criticisms of the use of discrepancy formulas are essentially the same today as those which were so vehemently expressed by professionals when a formula was first proposed for inclusion in the definition. In a review of the learning disabilities literature from 1970-1980, Banas (1984) found that of the studies directly addressing this issue none supported this method as a valid means to identify learning disabilities. Opposition by advocacy groups has become increasingly apparent in recent years. The Board of Trustees of the Council for Learning Disabilities (1987) issued the following position paper which clearly reflects the primary concerns cited in the current literature:

1. Discrepancy formulas tend to focus on a single aspect of learning disabilities (e.g., reading, mathematics) to the exclusion of other types of learning disabilities;
2. Technically adequate and age-appropriate assessment instruments are not currently available for all areas of performance, especially for preschool and adult populations;
3. Discrepancy formulas may contribute to inaccurate conclusions when based on assessment instruments that lack adequate reliability or validity;
4. Many learning disabled individuals' intelligence test scores are depressed so that the resulting difference between intelligence and achievement test scores may not be large enough to meet the dis-

- crepancy criterion. Therefore, such individuals may be denied access to, or may be removed from, needed services;
5. Many underachieving individuals obtain significant discrepancies between intelligence and achievement test scores for reasons other than the presence of a learning disability;
 6. The use of discrepancy formulas often creates a false sense of objectivity and precision among diagnosticians who feel that their decisions are statistically based when formulas are employed;
 7. In practice, discrepancy formulas are often used as the sole or primary criterion for determining legal eligibility for learning disability services;
 8. Although promoted as a procedure for increasing accuracy in decision-making, discrepancy formulas often represent a relatively simplistic attempt to reduce incidence rates of learning disabilities (pg. 349).

Similarly, The National Association for Children with Learning Disabilities Advisory Board addressed the discrepancy issue with this position statement:

The handicapping condition of specific learning disabilities is a clinical diagnosis and does not conform to mathematical/statistical definitions. This is true even if mathematical/statistical definitions are considered to be only a part of the diagnostic process. They have no part.

The Professional Advisory Board recognizes that eligibility criteria for learning disability involves the use of statistical data in many forms: quotients, stanines, percentiles, grade equivalents, standard scores, behavior counts, and so on. However, the use of these data in a preconceived manner (such as the use of cut-off scores,

formulas, and equations) cannot possibly work to the benefit of students with learning disabilities because: (a) the condition of learning disabilities is a clinically defined phenomenon and is not a quantifiable condition; (b) pre-conceived statistical manipulation of data tend to meet political needs but not students' needs; (c) pre-conceived statistical manipulations of data are antithetical to the IEP decision-making process set forth in P.L. 94-142 regulations; (d) pre-conceived statistical manipulation of data might easily force the use of certain diagnostic test instruments to the exclusion of others, which is a practice that cannot be defended (Bateman, 1985, pg. 12).

Indeed, the practice can not be defended legally and has not stood the test in the courts (Bateman, 1985). The courts decided on this issue in *Riley versus Omback*. The decision stated that quantitative formulas are not compatible with clinical evaluation and diagnosis as mandated by law. Technically inadequate and inaccurate tests were also cited as problematic (Bateman, 1985).

The validity and reliability of the concept has been severely questioned for a variety of reasons. One particular concern is the assumption that meaningful scores are used in the formulas (Bateman, 1985). The degree to which intelligence tests measure ability or potential has been explicitly challenged (Danielson & Bauer, 1978). McLeod (1983) noted, "Burt, Terman and other genetically inclined psychologists began a mischief in the early part of the present century when they expropriated Binet's excellent new instrument and promulgated the dogma that the intelligence test provides a valid measure of 'innate capacity'" (pg. 23). It has long been recognized that most intelligence tests actually measure learned intellectual skills such as attitudes, interests, motivation, work habits,

problem solving strategies, self-concept, and reactions which have all been greatly influenced by prior experience, environment, and educational achievement (Danielson et al., 1978; Anastasia, 1982). Overlap in measured abilities on intelligence and achievement tests has also been demonstrated. Anastasia (1982) noted that the similarity of content and high correlation of these tests has been demonstrated empirically by research.

It has also been suggested that the nature of the learning disability itself including impaired cognitive abilities, attention deficits, and erratic test performance often preclude the valid assessment of intelligence (Danielson et al., 1978; Bateman, 1985). Schere, et al. (1980) noted that one would expect test irregularities in these children, and that if these differences are real then these tests could not be used as predictors of achievement. Section 121a 532 of PL 94-142 clearly expressed the intent that ability tests should accurately reflect aptitude and not the impairment. This creates inherent problems for learning disabilities diagnosis because it is virtually impossible for test performance to not be affected by the disability (Bateman, 1985).

Another problem suggested is that all tests, and particularly intelligence tests, measure a variety of abilities and processes and differ in content in many ways (Anastasia, 1982). Therefore, an individual will score differently depending on the test chosen (Danielson et al., 1978). Consequently, test selection can greatly affect who meets the discrepancy difference and who is ultimately certified (Smith, 1982). Furthermore, tests of all types are simply not available for children at the upper and lower age ranges (Danielson et al., 1978). Similarly, tests to evaluate the eight areas specified by law are not available. Using formulas and measuring achievement have been particularly problematic at younger ages because

there is little achievement to measure and item content is very similar on many types of tests.

Over-inclusion and under-inclusion have ultimately resulted from these practices. In one study which looked at the ability of discrepancy devices to isolate distinct groups, the researchers concluded that misclassification and non-identification were both likely to occur, and that the diagnostician could make L.D. anything they chose it to be (Algozzine, Ysseldyke, & Shinn, 1982).

The Process Component

Although it is clear that processing weaknesses have generally been considered by professionals to be an integral part of being learning disabled (McNutt, 1986), the definitional phrase "a disorder in one or more of the basic psychological processes involved in the understanding or using of language spoken or written" (U.S. Office of Education, 1977, p. 42474-42518), has probably generated more controversy than any other component of the Federal definition (Schere et al., 1980). Cruickshank (1983), one of the pioneers of the learning disabilities field, considered this concept to be of major importance. He noted that all the sensory modalities, emotions, memory, and perceptual processing and ultimately learning are neurological functions. In addition, these perceptual processing deficits result in difficulty in acquiring developmental, academic, and social skills and affect emotional growth.

In a review of the learning disabilities literature from 1970-1980, Banas (1984) found that a significant number of research and opinion papers which addressed this issue, regarded processing disorders as being fundamental to being learning disabled and a discriminating factor. A comparatively small number opposed or denied this fact.

A major contributing factor to the confusion surrounding the process component has been that although included in the definition, no criteria for identification was included in the operational definition. Therefore, states were left with a vague, ill-defined concept and with the decision to include or not include the component in their identification procedures (Reynolds, 1986). In a survey of state definitions and procedures conducted in 1976, Mercer, Forgnone, & Wolking found the process component to be the most prominent factor of fifteen definitional components. A more recent survey found that 86% of the states included a process disorder in their definition, but only 12% utilized this criteria in identification procedures (Mercer, 1985).

To many, the vagueness of the term "basic psychological processes" has created significant problems resulting in the development of a variety of interpretations (Berk, 1984). To some, the meaning was implied and should have been interpreted as impaired processes manifested as language disorders (Berk, 1984). However, others suggested that the term was simply intended to focus attention on the intrinsic causes of the disability in contrast to extrinsic or environmental ones (Berk). It has also been suggested that the original meaning was actually replaced by a few theories of psychological processing and the tests which were developed to measure those processes (Berk, 1984).

Two models have dominated the literature regarding psychological processes: Chaland and Scheflin's information processing model and Kirk and Kirk's psycholinguistic model. The following salient features of the two models were summarized by Wallace and McLoughlin (cited in Berk, 1984).

1. The learner must be able to receive, integrate, and do something with information which he [or she] takes in.
2. All modalities (vision, hearing, touch, etc.) must be considered important factors in learning, either on an individual basis or combined.
3. Psychological processes overlap, are on-going, and are not unitary functions.
4. The effort is made to distinguish between processing information in a meaningful way, in a symbolic or nonsymbolic way, and in a verbal or nonverbal way.
5. These descriptions generally include an explanation of their effects on academic learning (p. 294).

Underlying the concept regarding processing disorders has been the notion that there are impairments in a variety of processes including visual, auditory, haptic, intersensory, and motor. These are involved in discrimination, memory, integration, association, sequencing, and closure to name a few. These impairments are assumed to precipitate or cause academic achievement deficits (Mercer, 1985; Hammil, et al., 1981). According to Berk (1980), these process impairments have been assumed to take the following forms: "(a) loss of the process, (b) inhibition of the development of the process, or (c) interference with the function of the process" (p. 25).

Since the NACHC definition of learning disabilities was included in PL-94-142, the processing component has come under close scrutiny and generally, the results of the investigations have been negative. Kavale & Forness (1985) summarized the following research findings:

1. Measures of psychological processes assess hypothetical constructs

- and generally fail to demonstrate satisfactory construct validity....
2. The limited empirical support for the constructs (abilities) makes it difficult to determine whether performance differences are the result of "real" ability differences or of the method of measurement....
 3. It has been found that the relationship of perceptual abilities (visual and auditory) to academic achievement is of insufficient magnitude to validate the assumption that perceptual skills underlie academic learning....
 4. L.D. children do not exhibit greater difficulty than normal children in ability to integrate one modality function with another modality function (intersensory integration, cross modal perception, internodal transfer)....
 5. Evidence suggests that although L.D. children may exhibit perceptual deficiencies, reading ability is not related to the degree of perceptual deficiency....
 6. Among subgroups of LD children, only a very small percentage exhibit perceptual difficulties as the major performance deficit....
 7. Perceptual-motor deficiencies may be present in LD children, but it has been found that perceptual-motor skills are often minor contributors to the learning process...(p. 15).

The process component has been considered by professionals as primary to the learning disabilities concept. Yet, confusion surrounding the concept has prevented its inclusion in state evaluation procedures in all but a small percentage of states. Improvement in the reliability of diagnostic instruments or improvement in the training of the diagnosticians may eventually resolve this issue.

The Exclusionary Component

The purpose of the exclusionary component was to delineate "characteristics of children which exclude them from being identified as learning disabled" (Mercer et al., 1976, p. 50). This part of the definition reads: "The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation or emotional disturbance, or of environmental, cultural or economic disadvantage" (U.S. of Education, 1977, p. 65083).

This component has been found to be of major importance in defining and identifying learning disabled children (Mercer et al., 1985). McNutt (1986) found that although the elements within this component varied from state to state, 91.5% of states had an exclusionary clause in their definition and 95.7% had them in identification criteria.

Again, the primary criticism has been that the statement is ambiguous and has therefore generated confusion (Hammil et al., 1981). The original intent was that the child would be placed according to the primary handicap. One resulting problem has been that the clause has in some instances lead to the denial of mentally retarded children from learning disabled type programming and remedial services (Berk, 1985).

Another problem has been that the heterogenous nature of learning disabilities has prevented the isolation of a category of children with unique and distinct characteristics (Kavale, 1985). The heterogeneity of the group has been well documented and "is the rule and not the exception" (Keogh, 1983, p. 25). Attempts at isolating homogenous subtypes has for the most part, failed as well (Kavale et al., 1985). Bryan et al. (1988) concluded that this desire to identify subgroups is actually an inability to accept the heterogenous nature of the disability.

The following research findings were summarized by Kavale et al. (1985) regarding this issue of identification of some children as learning disabled and the exclusion of others. The exclusion component has not isolated a unique and distinct LD category:

1. When considered within a behavioral rather than a categorical framework, LD reveals more similarities than differences when compared to mental retardation (MR) and behavioral disorders....
2. Diagnostic test data have not reliably differentiated LD from MR and BD....
3. Although average intelligence ($IQ = 100$) is a requisite for inclusion in the LD category, findings have shown that anywhere from 25% to 40% of labeled LD children are depressed in intellectual functioning.... (Even though this is a systemic problem, it nonetheless illustrates the problematic nature of exclusionary criteria.)
4. Although social-emotional problems represent the primary defining characteristic of BD, the LD group has been shown to manifest significant social-emotional difficulties which cannot be distinguished reliably from the behavioral profiles of BD children....
5. Although academic underachievement is considered the primary criterion for LD it is equally applicable to both MR and BD....
6. Although problems resulting primarily from environmental, cultural, or economic disadvantages (CD) are eliminated from LD consideration, conditions in CD environments place a child at high risk for academic failure and can result in learning impairments which are indistinguishable from the cognitive, perceptual, linguistic, and

informative processing behavior considered primary characteristics of LD....

7. Because approximately 75% of LD children exhibit reading problems as a primary deficit and approximately 87% of LD children receive remedial reading instruction, there is difficulty in reliably differentiating LD and reading disability (RD) with respect to etiology, identification procedures, or intervention techniques... (p. 17).

The exclusionary component has been considered a primary condition for the identification of learning disabilities and is contained in evaluation procedures in almost all states. Isolating an unique category of children has proven difficult under this structure. Perhaps simplification of this component would prove useful.

Chapter 3

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE DIRECTIONS IN DIAGNOSIS

The crisis in the field of learning disabilities is evident and is essentially the result of an inability to come to a consensus on how best to identify and/or diagnose individuals having learning disabilities. The debate has centered largely around the inconsistency and vagueness of the federal definition and the operational definition. It is not likely that there are any simple solutions to any of these problems. However, there are steps which might improve the current situation and ultimately lead to progress toward resolution of the confusion.

First, the definition must be operationally defined and the procedures for identification must be uniformly implemented by all state educational agencies. Until consistency from state to state is achieved, no real progress can be made within the field. Meaningful research can only then be accomplished. Reliable estimates as to the true prevalence of the disability can then be made. If the integrity of the concept is to be preserved, it must mean the same thing to be learning disabled in Bulls Gap, Tennessee as it does in Fairbanks, Alaska. Secondly, the complex nature of the disability and the heterogeneity of the group must be recognized and a more comprehensive approach to diagnosis must be utilized. This approach would require the integration of the best of all three diagnostic models including clinical, psychometric, and statistical

methods and the return of the diagnostic process to an evaluation team where it was intended to be (Bateman, 1985).

The use of tests and psychometric data in the diagnostic process are extremely valuable when utilized properly. Certainly, much information can be gained regarding a child's approach to tasks, his attention, his verbal ability, and his strengths and weaknesses as demonstrated by patterns of test scores. Tests are valuable in that they sample distinct tasks, cover a broad area of behaviors (Smith, 1979), and measure other discrete abilities such as memory, language, perceptual processing and reasoning ability (Smith, 1982). In addition, tests are efficient and give good information as to directions for additional assessment.

Tests and the derived statistical data, however, are only one small piece of information (Lyman, 1978) and should be used as aids to diagnosis and not the sole means for making placement decisions or for labeling (Kaufman, 1979). Test data should always be considered in relationship to other information collected through observations and interviews. Kaufman (1979) emphasized that the child should be the focus of the evaluation and that tests should also be considered in the context of the child's own behaviors and experiences.

Bateman (1985) suggested that statistical data whenever utilized is best kept to the simplest of methods so one does not delude himself into believing that the information is any more than a tentative guide and an aid to diagnosis. Tests should be the beginning of the discovery process and never the end result of evaluation and diagnosis (Smith, 1979).

The evaluation procedures for diagnosing learning disabilities must be comprehensive and straightforward. These procedures must include a

measure of intelligence, a measure of academic achievement, evidence of processing deficits, evidence of a behavioral profile characteristic of learning disabilities, and a simple exclusionary statement.

The intelligence condition must be included in the identification procedures so there is an estimate as to potential ability. This does not imply that a test score in and of itself tells us the answer to that question. Analysis of the psychometric data contained within the test, the possible factors influencing test performance, and the accompanying behavioral data must all be considered. This allows flexibility for problems created by poor test performance expected within this population. More importantly, it is necessary to establish potential for academic work. There were actually no eligibility requirements for learning disabilities based on levels of intelligence included by law or regulation. There was only an exclusion because of mental retardation (Bateman, 1985). It is important to the integrity of the concept of learning disabilities that learning failure be attributable to specific areas of weakness and not to more global disabilities such as mental retardation. Therefore, potential academic ability, the intelligence component, should state that the child should have intelligence within the normal to near normal range.

The academic condition must be included in the evaluation procedures to establish that the child is not achieving at a level which is commensurate with his age or ability. As Bateman (1985) suggested, the cruder the system the better. A method of graduated deviation from grade level would not be too sophisticated and would allow for the increase of homogeneity of skill levels at the secondary level. However, it is important to consider other information including estimates of true differences, specific areas of

weakness, and behavioral characteristics in relationship to the deficits. Criticism that this method discriminates against children with higher levels of potential seems unjustified in light of current trends to educate these children in the mainstream. Although a child may have more potential, if he/she is working at grade level or above, in most instances it would seem inappropriate to remove that child from the regular classroom environment to provide special services. Actually, the question as to whether or not special education is required has to be answered in all cases (Bateman, 1985).

Requirements for exiting from special education need to be addressed at this point. A common practice has been to exit students from special education if the standard for a discrepancy is no longer met at re-evaluation (Bateman, 1985). This method fails to account for the very purpose of specialized instruction which is to accelerate academic gain. It is expected that better teaching methods will have a positive impact. It does not follow that the child is no longer learning disabled simply because he has no discrepancy. The exit criteria must allow for an option to continue service.

The academic condition should include that the child will exhibit deficits of one to three years depending on grade level attained in one of the eight areas outlined in PL-94-142. Once a learning disability has been diagnosed, the M-team must determine that special education is no longer required in order for the child to attain functional skill levels of approximately eighth grade or above.

In establishing that a learning disability exists, it is important that the procedures for evaluation include a fundamental processing component.

When considering learning disabilities, academic deficits are meaningless unless there is accompanying evidence of some type of processing difficulty. Without the process component other factors, such as motivational deficits, become much more likely sources of academic failure and need to be thoroughly investigated. Although there has been confusion regarding the measurement of these processes, there have been improvements in some of these areas, particularly with test instruments. More progress in this area is called for but the importance of the concept has not been diminished.

The process condition should encompass perceptual/cognitive deficits verified by assessment. These delays should be one to three years below grade level depending on the grade level attained and include visual processing, auditory processing, language, and sensory integration/association.

The behavioral component, although not included in the current procedures, adds a missing dimension to evaluation and diagnosis. Actually there is a trend toward adoption of this approach as a better method than current practices (Smith, 1980). It is important to look at a vast repertoire of the child's behavior and not just at the limited picture constructed by a few hours of testing. The relationship between behavior in its broadest sense and the degree of academic failure must be considered. This includes learned pre-requisite skills, such as attention and memory, as well as actual academic behaviors. Social and emotional adjustment, language skills, perceptual motor skills, and medically related characteristics all need to be considered as to their impact on academic achievement. Adaptive behavior skills which separate the disability from other more global disabilities must also be considered. It is a comprehensive profile of a child that ultimately

characterizes a child as being learning disabled.

Because it has been shown that economic disadvantage, behavioral disorders, and emotional disturbance are virtually impossible to distinguish from learning disabilities, a complicated exclusionary component is not defensible and adds nothing to the diagnostic process. The exclusionary component should, therefore, be straightforward and reflect the original intent of the law; that the learning disability is the primary handicap. The statement should simply include that the child does not qualify for placement in any other special education category.

No one method for determining a learning disability is adequate by itself. It takes good clinical judgement to integrate the psychometric, statistical, and behavioral data. Comprehensive evaluation and integration are an absolute necessity. There are simply too many questions which statistics alone cannot answer. The use of statistical formulas in preconceived ways is a highly questionable practice when considering the complexity of the disability. Actually, a discrepancy between ability and achievement tells us just that, and tells us no more (Bateman, 1985). Consequently, a severe discrepancy does not equate with a diagnosis of being learning disabled.

This process, if comprehensive, requires its return to an evaluation team. The knowledge which each professional brings to the decision making process is invaluable and hopefully independently made. Variations in programs, teachers and children need to be considered within this context (Bateman, 1985).

Resolution of the problems facing the learning disability field will take something akin to a miracle. It is imperative, however, that immediate

steps be taken toward defining consistent practices which are comprehensive enough to take into account the heterogeneity of the disability. The value of clinical judgement when contemplating such complex issues cannot be considered lightly. Future efforts should focus on improving clinical training, practice and judgement, and the development of comprehensive approaches to diagnosis. Substituting simplistic numerical formulas to make complex decisions cannot be the answer.

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