

# LEARNING DISABILITIES: HISTORICAL PERSPECTIVES

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Although the federal government's involvement in learning disabilities through task forces, legislation, and funding has only been evident since the 1960s and 1970s, we can trace learning disabilities' roots back to at least the early 1800s. Thus, learning disabilities may be one of the newest categories officially recognized by the U.S. Department of Education, but the origins of its conceptual foundation are as longstanding, or nearly as longstanding, as many of the other disability categories.

We have divided the history of learning disabilities into five periods: European Foundation Period (c. 1800 to 1920); U.S. Foundation Period (c. 1920 to 1960); Emergent Period (c. 1960 to 1975); Solidification Period (c. 1975 to 1985); Turbulent Period (c. 1985 to 2000). Others before us (Lerner, 2000; Mercer, 1997; Wiederholt, 1974) have also divided the history into roughly similar periods.<sup>1</sup>

## EUROPEAN FOUNDATION PERIOD (C. 1800 TO 1920)

During the European Foundation Period, there were two main lines of work relevant to the field of learning disabilities. First, several groundbreaking discoveries in the field of neurology occurred during this time. Second, toward the end of this period, significant seminal articles and books on reading disabilities were published.

### Research on Brain-Behavior Relationships

We can trace the origins of the field of learning disabilities back to research in Europe on acquired brain pathology in adults. Men whose names still grace the pages of neurology textbooks conducted this research. One of the primary objectives of this research was the attempt to match up areas of the brain to particular behaviors. A German physician, Franz Joseph Gall, is credited as the first major figure to explore the relationship between brain injury and mental impairment. Gall based much of his theorizing on observations he made of brain-injured soldiers. In a letter published in 1802, he conjectured that three separate parts of the brain are each responsible for what he termed: (a) vital sources (movement and sensation), (b) moral qualities (inclinations of the soul), and (c) intellectual qualities (Head, 1926; Wiederholt, 1974). Of particular relevance to learning disabilities, Gall is known for noting the effect of brain damage on what today would be termed *Broca's aphasia*.

Gall's contributions in linking brain injury and aphasia, however, were largely overshadowed by his association with the phrenology school of thought, the belief that skull shape determines mental and personality attributes. In later years, many considered him a quack. One exception was John Baptiste Bouillaud, Dean of the Medical School of the College of France (Wiederholt, 1974).

In the 1820s, Bouillaud furthered Gall's work through autopsies of several patients with brain injury. Bouillaud did not ascribe to Gall's position on phrenology, but he did agree with much of what he had to say regarding the localization of brain functioning. Although Gall had hypothesized that the control of movement and sensory perception are located in the brain stem, Bouillaud concluded that they are located in the cortex. In addition, he asserted that the frontal anterior lobes of the brain control speech.

In the 1860s, Pierre Paul Broca did much to debunk the phrenologists through postmortem observations of adults with brain injury. In particular, Broca is generally known for being the one who did the most to promote the idea that speech functions primarily reside in the left side of the brain.<sup>2</sup> He based his case on autopsies of several patients who had had impaired speech while alive. Broca concluded that a small section of the left side of the brain was responsible for speech. This area, which is located in the inferior left frontal lobe, has come to be called *Broca's area*; persons who have a particular constellation of speech problems involving slow, laborious, dysfluent speech are referred to as having Broca's aphasia. Some have

questioned specific aspects of Broca's observations (e.g., Grodzinsky, in press), and neuroscientists now believe that damage to the right side of the brain can play a role, although limited, in causing speech problems. However, Broca's claims have largely withstood the test of time.

Carl Wernicke, a Polish-born physician whose family moved to Germany at an early age, was another major figure who explored brain localization during this period. In 1874, he published a book describing 10 case studies of brain-injured patients with language problems. However, the language disorders they possessed were different from those of Broca's patients as was the particular area of the brain affected (Wernicke, 1874). In contrast to Broca's subjects, Wernicke's patients had fluent and unlabored speech, but the sentences spoken were often meaningless. In addition, his cases had difficulties in recognizing and comprehending words. He called this disorder sensory aphasia, which has become known as *Wernicke's aphasia*. The particular area of the brain, now referred to as *Wernicke's area*, consists of a section of the left temporal lobe.

### Research on Reading Disabilities

In 1872, Sir William Broadbent reported on the case of an intelligent adult patient who:

after head symptoms, completely lost the power of reading either printed or written characters, while he could write readily and correctly from dictation or spontaneously. His conversation was good and his vocabulary extensive, but at times he was at a loss for a name, and he was quite unable, when asked, to name the simplest and most familiar object presented to his notice. The loss of power to read was of course a part of this more general loss of power to name. (Broadbent, 1872, p. 26)

Five years later, Adolph Kussmaul (1877) reported on the case of an adult patient with no apparent disabilities other than a severe reading deficit. He asserted that "a complete text-blindness may exist, although the power of sight, the intellect, and the powers of speech are intact." In emphasizing the specificity of the reading problems, in isolation from other types of potential problems, Kussmaul gave birth to the idea of *specific* reading disability. Kussmaul labeled the condition *word-blindness*:

In medical literature we find cases recorded as aphasia which should not properly be designated by this name, since the patients were still able to express their thoughts by speech and writing. They had not lost the power either of speaking or of writing; they were no longer able, however, although the hearing was perfect, to understand the words which they heard, or, although the sight was perfect, to read the written words which they saw. This morbid inability we will style, in order to have the shortest possible names at our disposition, *word-deafness* and *word-blindness*... (Kussmaul, 1877, p. 770)

A reciprocal academic relationship between two physicians—John Hinshelwood from France and W. Pringle Morgan from England—was the catalyst for extending this work on acquired word-blindness in adults to congenital word-blindness in children. Hinshelwood's first foray into research on word-blindness was with an adult whom he saw in 1894 and followed until his death in 1903. After his death an autopsy was performed, and Hinshelwood concluded that the section of the brain affected was the left angular gyrus, which is immediately posterior to Wernicke's area.

Hinshelwood's paper describing this patient, published in 1895 in *Lancet*, prompted Morgan to report on what is believed to be the first published case of a child with congenital word-blindness.<sup>3</sup> Morgan's case was a 14-year-old boy who had a history of severe reading problems:

He seems to have no power of preserving and storing up the visual impression produced by words—hence the words, though seen, have no significance for him. His visual memory for words is defective or absent; which is equivalent to saying that he is what Kussmaul has termed "word blind"...

Cases of word blindness are always interesting, and this case is, I think, particularly so. It is unique, so far as I know, in that it follows upon no injury or illness, but is evidently congenital, and due most probably to defective development of that region of the brain, disease of which in adults produces practically the same symptoms—that is, the left angular gyrus.

I may add that the boy is bright and of average intelligence in conversation. His eyes are normal, there is no hemianopsia, and his eyesight is good. The schoolmaster who has taught him for some years says that he would be the smartest lad in the school if the instruction were entirely oral. (Morgan, 1896, p. 1378)

Hinshelwood, in turn, used Morgan's case as an impetus to turn his attention to congenital, in addition to acquired, word-blindness. From the late 1890s into the early 20th century, Hinshelwood gathered data on several cases of acquired and congenital word-blindness and published his observations in his classic volume, *Congenital Word-Blindness* (Hinshelwood, 1917). He was one of the first to note at least two important aspects of reading disability in children. First, he noted the preponderance of males with the condition. Out of the 12 cases he presented in the book, 10 of them were males. Furthermore, he cited an article published in *Lancet* in 1904 by Stephenson, in which the author had commented that of the 16 cases reported up until then in the literature, 13 of them were males.

Second, Hinshelwood highlighted the potentially inherited aspect of reading disability. He reported on six cases within two generations of the same family:

If we analyze the symptoms manifested by these six cases, we are struck with their similarity. The symptoms of all six children were practically identical in kind, but only differed in degree. Their defect was strictly confined to their inability to recognize by sight, words and letters, with one exception, that of Case XI, where the inability was extended to numbers also. (Hinshelwood, 1917, p. 72)

Furthermore, he cited a growing body of literature published in several journals (e.g., *Lancet*, *The Ophthalmoscope*, *Ophthalmic Review*) of cases of congenital word-blindness occurring within close relatives. Similar to the literature on gender, the cases were relatively few in number; however, evidence was accumulating to suggest that congenital word-blindness was primarily manifested in males and was often inherited.

Hinshelwood also addressed the issue of diagnosis and prevalence of word-blindness, foretelling current-day debates over these issues:

In my first contribution on this subject I said: "I have little doubt that these cases of congenital word-blindness are by no means so rare as the absence of recorded cases would lead us to infer. Their rarity is, I think, accounted for by the fact that when they do occur they are not recognized." ... In educational circles there was even a tendency to exaggerate the frequency...and I find...the statements "that these cases...are of very common occurrence," and that "one in every thousand of the children in our elementary schools at least shows this defect." ...

The truth is that this great divergence of opinion...is simply due to the fact that some later writers have extended the term congenital word-blindness to include slight degrees of defect in the visual word center, while the earlier writers had reserved it only for those grave cases which could be regarded as pathological. (Hinshelwood, 1917, pp. 76–82)

Hinshelwood postulated that the primary disability these children had was in visual memory for words and letters. Thus, his educational recommendations, although not very specific, dealt with training children to increase their visual memory for words. Furthermore, he was a strong advocate for intensive, individualized one-on-one instruction: "It is not possible to teach such children in ordinary elementary schools.... The first condition of successful instruction in such cases...is that the child must have personal instruction and be taught alone" (Hinshelwood, 1917, p. 99).<sup>4</sup>

## U.S. FOUNDATION PERIOD (c.1920 TO 1960)

By about the 1920s, clinicians and researchers in the United States began to take an interest in the work of the Europeans who had been studying brain-behavior relationships and children and adults with learning difficulties. The U.S. researchers focused their efforts on language and reading disabilities and perceptual, perceptual-motor, and attention disabilities.

### Language and Reading Disabilities

In the United States, there were several key figures from medicine, psychology, and education during this period who used the research of Hinshelwood and other Europeans as a springboard for their own work. Primary among these were Samuel Orton, Grace Fernald, Marion Monroe, and Samuel Kirk.

*Samuel Orton.* Samuel Orton was arguably the key figure in setting the stage for the study of reading disabilities in the United States. The primary professional society devoted to reading disabilities, the International Dyslexia Association, was originally named the Orton Dyslexia Society.

In January of 1925, Orton, then a neuropathologist at the State Psychopathic Hospital in Iowa City, set up a 2-week, mobile clinic in Greene County, Iowa. As a part of this “experiment,” local teachers were invited to refer students “who were considered defective or who were retarded or failing in their school work” (Orton, 1925, p. 582). Fourteen of the 88 students were referred primarily because they had great difficulty in learning to read. Orton highlighted the fact that many of these students scored in the near-average, average, or above-average range on the Stanford-Binet IQ test—one had an IQ of 122, four had IQs between 100 and 110, five had IQs between 90 and 100, one had an IQ of 85, and four had IQs between 70 and 80.

Hinshelwood had also noted that many of his cases of congenital word-blindness were intelligent, but with the advent of IQ tests Orton was able to lend a certain degree of objectivity to this notion. Furthermore, presaging later references to the Matthew effect, Orton speculated that the IQ score might not always reflect true intellectual ability in students with reading disabilities. In describing what he termed a typical case, a student with an IQ of 71, he stated: “I was strongly impressed with the feeling that this estimate did not do justice to the boy’s mental equipment, and that the low rating was to be explained by the fact that the test is inadequate to gauge the equipment in a case of such a special disability” (Orton, 1925, p. 584).

After his seminal article in 1925, Orton continued to study children with reading disabilities over the next several years, with his work being summarized in his classic book, *Reading, Writing, and Speech Problems in Children* (Orton, 1937). Although he relied heavily on Hinshelwood’s prior work, Orton’s views differed from Hinshelwood’s in at least three important respects. First, Orton had a much more liberal view of the prevalence of reading disabilities. Whereas Hinshelwood had bristled at the notion that one per thousand of students in elementary schools might have “word-blindness,” Orton offered that “somewhat over 10 per cent of the total school population” (Orton, 1939, p. 59) had reading disabilities. He noted that Hinshelwood had argued for restricting the diagnosis of word-blindness to those cases in which there would be no question about whether there was pathology present. Orton argued, however, that Hinshelwood:

did not...offer any usable criterion as to how such a separation of the pathological cases could be made, and our experience in studying and retraining several hundred such cases over a period of years has convinced us that [they] cannot be so divided but rather that they form a graded series including all degrees of severity of handicap. (Orton, 1937, pp. 71–72)

Second, although they both thought reading disabilities were often inherited, Hinshelwood pointed to agenesis of the angular gyrus in the dominant hemisphere as the site of the problem. Although Orton considered the angular gyrus of the dominant hemisphere as “essential to maintaining a normal reading skill” (Orton, 1937, p. 39), he viewed reading as a complex activity that involved several areas of the brain. Rejecting the idea of defects in brain development, Orton focused instead on the inheritance of mixed cerebral dominance, or motor intergrading, as being behind many cases of reading disabilities.

Orton linked mixed dominance to the major symptoms he frequently observed in the clinic: (a) reversals of letters such as *p* and *q* and *b* and *d*; (b) confusion of palindromes such as *was* and *saw*; (c) reading from right to left, manifested by reversals of paired letters, syllables within words, or whole words within sentences; and (d) a propensity to “mirror read and/or write.” He theorized that the nondominant hemisphere of the brain stored mirror engrams of the engrams recorded in the dominant hemisphere. For example, in reading the word *was*, the dominant hemisphere would store *was* in the dominant hemisphere while at the same time storing *saw* in the nondominant hemisphere. In those who have complete hemispheric dominance, the dominant hemisphere controls language and, therefore, the mirrored engrams are suppressed. In the case of mixed dominance, however, the mirrored engrams often emerge causing the child to reverse letters or words.

Third, Orton’s emphasis on cerebral dominance and reversals led him to propose a different term than word-blindness to describe the children whom he was seeing in his clinic:

The term “congenital word-blindness” because of its association with the acquired condition and the implications therefrom, does not seem to be properly descriptive of this disability, and I would therefore like to offer the term “strephosymbolia” from the Greek words, [*strepho*], twist, and [*symbolon*], symbol.... The prefix “strepho” has been chosen to indicate the turning or reversals.... “Symbolon” is used in its original meaning of “word,” “sign” or “token,”.... Strephosymbolia thus seems nicely suited to our cases in which our analysis points to confusion, because of reversals, in the memory images of symbols resulting in a failure of association between the visually presented stimulus and its concept. (Orton, 1925, p. 610)

Ironically, neither term—word-blindness, strephosymbolia—fared well historically, the former primarily because of its focus on the visual aspect of reading, the latter primarily because of its emphasis on mixed cerebral dominance and reversals. Although few subscribe to Orton’s views on cerebral dominance and reversals today, he has had an enduring influence in the realm of remediation techniques in at least two respects. First, he was one of the first to advocate focusing on phonics instruction with students with reading disabilities. He criticized the then-current “look and say” or “sight reading” method of reading instruction for the general population and proposed that:

logical training for these children [those with strephosymbolia] would be that of extremely thorough repetitive drill on the fundamentals of phonic association with letter forms, both visually presented and reproduced in writing, until the correct associations were built up and the permanent elision of the reversed images and reversals in direction were assured. (Orton, 1925, p. 614)

Orton later emphasized that teaching letter sounds was not enough, that there was a need for sound blending:

We have repeatedly seen children referred to us as reading disability cases with the statement that the phonetic method had been tried but had failed. In these cases examination has revealed the fact that while the teaching of the phonetic equivalents may have been fairly complete, the next step, that of teaching the blending of the letter sounds in the exact sequence in which they occur in the word, had not been attempted or had been poorly carried out. It is this process of synthesizing the word as a spoken unit from its component sounds that often makes much more difficulty for the strephosymbolic child than do the static reversals and letter confusions. (Orton, 1937, p. 162)

Second, Orton was one of the first to introduce the idea of multisensory training. In particular, he stressed the use of the kinesthetic function by having students trace letters while sounding them out (Orton, 1937). And Orton’s ideas served as a stimulus for the work of Anna Gillingham and Bessie Stillman, whose book, *Remedial Work for Reading, Spelling, and Penmanship* (1936) emphasized building the following linkages: visual-auditory, auditory-visual, auditory-kinesthetic, and kinesthetic-visual. Gillingham and Stillman believed “it is essential to establish each linkage with patient care, even into the thousandth repetition” (Gillingham & Stillman, 1936, p. 36).

Today, practitioners still use many of the ideas of Orton and Gillingham and Stillman. These practices have come to be referred to as the Orton-Gillingham Approach. Basically, the Orton-Gillingham Approach is a phonics-based, multisensory method using the visual, auditory, and kinesthetic modalities for reading-decoding and spelling instruction.

*Grace Fernald.* Fernald was another figure associated with a multisensory approach to reading disabilities. As part of her rationale, she provided a brief history of the use of the kinesthetic modality to teach reading, including references to Plato in the third century B.C. Horace in 65 B.C., Quintilian in 68 A.D., Charlemagne in the 8th century, and Locke in the 17th century (Fernald, 1943).

Fernald differed from Orton and Gillingham, however, in her opposition to a phonics-based emphasis on sounding out letters and words. Instead, she emphasized reading and writing words as wholes.

Fernald actually predated Orton with respect to advocating for a multisensory approach to reading disabilities. In 1921, she coauthored an article describing remedial treatment of six cases of students with reading disabilities at the University of California–Los Angeles (UCLA) Clinic School (Fernald & Keller, 1921). Fernald and Keller developed what came to be known as the VAKT (visual-auditory-kinesthetic-tactual) method, which is composed of five stages. First, the teacher asks the child to pick some words that he or she would like to learn. The teacher then writes the word on the board, and the child says the word to him- or herself and traces the letters with the first two fingers of the dominant hand. Once learned, the teacher erases the word and the student writes the word, saying the syllables. The second stage is the same as the first except sentences are used rather than individual words. In the third stage, the child selects a book he wants to read. The student and teacher work through the book, one paragraph at a time. Words the student has not already learned are exposed through an adjustable slit in a piece of cardboard. If the student is unable to read the word, the teacher reads it aloud, and then the student says the word and writes it without looking at the copy. If the student still has problems writing the word, the teacher writes it and the student learns it as in the first stage. In the fourth stage, the slit is widened to include phrases, and the exposures are so brief that the student is not able to read word by word. After achieving recognition of the phrases, the child reads the entire paragraph to himself and reports on what he read. In the final stage, the teacher has the child read alone.

Over the years, the UCLA Clinic School expanded and by the early 1940s there were about 20 children admitted each academic year, with an additional 60 to 80 cases seen in the summer. Students received intensive instruction in basic school subjects, with a focus on reading instruction. In 1943, Fernald authored *Remedial Techniques in Basic School Subjects*, in which she summarized work in the clinic as well as in “experimental” classrooms established in the public schools, some of which contained a high concentration of children for whom English was a second language (Fernald, 1943).

Fernald kept extensive records on the progress of the students. Although lacking control groups, she reported notable gains for reading, spelling, penmanship, foreign language, and arithmetic. In addition, she reported follow-up data for many of the students, which were equally impressive. Whether Fernald’s results warrant the following assertion she made in the preface to her book is arguable, but it is interesting to contrast her confident optimism with some of the present-day lamentations about the ineffectiveness of special education:

Since no abilities are required for the mastery of reading, writing, and arithmetic which are not already possessed by the ordinary, normal individual, it seems obvious that there is no such thing as a person of normal intelligence who cannot learn these basic skills. The follow-up records of our cases over a period of years show that the application of established psychological principles makes success in the fundamentals possible for any normal individual. (Fernald, 1943, p. v.)

*Marion Monroe.* Having served as Orton’s research associate for his mobile clinic, Marion Monroe tried out his methods along with the methods of Fernald and Keller. While in Iowa, she developed diagnostic tests and used the results to guide instruction. Using a combination of kinesthetic tracing techniques and sound blending, she reported success with 29 children with reading disabilities (Monroe, 1928).

From Iowa, Monroe took a position at the Institute for Juvenile Research, a residential facility for delinquent boys with mental retardation. At the Institute, Monroe developed a *synthetic phonetic approach*, which began with having the child identify initial consonants and then vowels for pictures mounted on cards. After success with this, the teacher introduced sound blending and had the child read stories. In addition, the teacher used tracing whenever it was deemed necessary.

In her book, *Children Who Cannot Read* (1932), Monroe reported on several “experiments” in which she tested out her methods. In the first study, she compared three groups: Group A (89 students) was referred to the clinic and received instruction under close supervision there or in their home school, Group B (50 students) received instruction in their home school from teachers who came regularly to the Institute for teaching suggestions, Group C (50 students) received ordinary instruction in their home school. The major differences between Groups A and B with respect to treatment was that the teachers for the latter group delivered instruction more sporadically (before or after school or during free periods) and under less supervision: “The remedial work done in Group B, therefore, was not so intensive as that of Group A, and was subjected to a greater variety of disrupting influences” (Monroe, 1932, p. 138). Group A’s mean IQ was 101, Group B’s was 89, and Group C’s was 92. Over the course of the year, Group A gained 1.39 years in reading achievement, Group B gained 0.79 years, and Group C only gained 0.14 years.

Monroe also reported on four field-based projects in cities near Chicago where she was invited to train teachers to work with students with reading disabilities. In the first two, teachers were trained to provide one-on-one instruction. In City A, 15 teachers worked with 15 children over 2 months, providing an average of 13.8 hours of one-on-one instruction. The group made an average gain of 0.67 years in reading achievement. In City B, after 5 weeks of instruction and an average of 10.1 hours of one-on-one instruction, 30 children averaged 0.81 years growth in reading achievement.

In the last two field-based projects, students were taught in small special classes, which met with a trained teacher two or three times a week for 30- to 40-minute periods. In the first one, 41 students from grades 2 through 8 in City B made an average gain of 0.7 years in 2 months. In the second one, 10 students from a special school for truant children met daily in two groups of five for 3 months, which resulted in an average gain of 1.0 year in reading achievement.

Monroe’s summary of the studies is prescient with respect to what many learning disabilities researchers today report, especially concerning the need for intensive instruction by well-trained teachers:

Two hundred and thirty-five children were given remedial training by one hundred and thirty-one teachers. Progress in reading was made in a large percentage of cases studied, not only when children were trained under carefully controlled laboratory conditions, but also under conditions possible in public schools. Progress in reading was made under individual instruction and also in small groups of children....

The remedial-reading methods were found to be direct and readily understood. Public school teachers learned to apply the methods in the course of conferences and demonstration lessons.

The rate of progress in reading under remedial instruction was found to be a function of the child’s intelligence, his age, the number of hours spent in training, the number of months during which treatment was continued, the severity of the disability, the personality and behavioral difficulties encountered in applying the remedial training, and the closeness of supervision of the remedial techniques. Children and teachers varied greatly with regard to these factors....

The children with whom the remedial work failed were those whose reading difficulties were complicated by behavior disorders which the teachers were unable to control, or those to whom the remedial work was given irregularly and without persistent, systematic, or sympathetic treatment. (Monroe, 1932, pp. 157–158)

Although Monroe’s studies lacked the kind of methodological rigor demanded by today’s standards, e.g.,

random assignment and limited use of control groups, the impressive gains she reports are difficult to disregard completely. She was far ahead of her time with respect to the care she took to document the efficacy of her methods. Furthermore, in addition to furthering the work of Orton and Fernald through systematic investigation, she pioneered two practices that are fundamental to the field of learning disabilities today.

First, Monroe introduced the notion of discrepancy between actual achievement and expected achievement as a way of identifying students with reading disabilities. She calculated a “reading index” by comparing the student’s reading grade (the average of four tests: Gray’s Oral Reading Paragraphs, reading comprehension as measured either by the Haggerty Test for cases less than third grade achievement or by the Monroe Test, word analysis from the Iota Word Test from the Monroe Test, and word discrimination from the Word Discrimination Test from the Monroe Test) to an average of the student’s chronological, mental, and arithmetic grade. For example, a boy who chronologically is at a grade of 3.6, who on the basis of the Stanford-Binet has a mental grade of 4.0, and who has an arithmetic grade of 3.5 would have an average of 3.7. If his grade scores on the four reading tests average 2.0, then his reading achievement would only be 2.0/3.7, or 54%, of his expected achievement. Monroe advocated using 80% as a cut-off for having a reading disability, and using this cut-off she estimated that about 12% of the population had reading disabilities.

Second, Monroe went beyond using standardized tests just to identify children with reading disabilities. She advocated analyzing the specific types of reading errors children made on the tests in order to guide instruction, thus introducing the notion of what would later be called *diagnostic-prescriptive teaching*. She developed individual profiles of errors made on three reading tests (Gray’s Oral Reading Examination, the Iota Word Test, and the Word Discrimination Test from her own test). The errors included faulty vowels, faulty consonants, reversals, addition of sounds, omission of sounds, substitution of words, repetition of words, addition of words, omission of words, refusals, and words aided. Based on the types of errors the child presented, Monroe had specific remedial training suggestions.

*Samuel Kirk*. In 1929, Samuel Kirk began graduate school in psychology at the University of Chicago. As part of his training, he spent time as a resident instructor at the Institute for Juvenile Research, where Marion Monroe worked. Kirk’s duties were varied, but there was one fortuitous experience that was life-changing for Kirk and the eventual field of learning disabilities:

At this school I taught in the afternoon and served as a recreational worker after school. In the evenings I helped the nurses put the boys to bed and see that they stayed there. In reading the clinical folders of one of these children from the famous Institute for Juvenile Research, I noticed that the boy was labeled as “word blind,” a term I had never heard before in my psychology courses. He was ten years old, a nonreader, and had a recorded IQ of 82. This clinical folder referred to Marion Monroe’s monograph [Monroe, 1928] on reading disabilities, Hinshelwood’s book [1917] on congenital word blindness, and Fernald’s kinesthetic method. After reading these references, which I found the next day in the university library, I arranged to tutor the boy at nine o’clock in the evening, after the boys were supposed to be asleep. This boy, who was eager to learn, sneaked quietly out of bed at the appointed time each night and met me in a small space between the two dormitory rooms..., actually, in the doorway of the boy’s toilet. By making this arrangement we both knew we were violating a regulation, since the head nurse had directed me not to allow the boys out of bed after nine. In the same vein as the Boston Tea Party, and knowing the consequences of civil disobedience, I decided to take a chance and violate the directions since the cause was good. I often state that my first experience in tutoring a case of reading disability was not in a school, was not in a clinic, but in a boy’s lavatory. (Kirk, 1976, pp. 242–243)

After 7 months, the boy was reading at the third grade level and he was released from the Institute to attend regular school. Monroe, hearing of Kirk’s success, invited him to confer with her about his tutoring. She then tutored Kirk in diagnosing and remediating severe cases of reading disabilities.

For his master’s thesis, Kirk (1933) compared the Fernald kinesthetic method with the look-and-say

method, finding them equal with regard to number of trials required for learning but retention being better for the manual tracing method. Kirk was then employed as a psychologist at another residential facility for children with mental retardation, Wayne County Training School in Northville, Michigan, an institution that was to become a testing ground for many instructional techniques used for children with learning disabilities.

While at Wayne County, Kirk pursued his doctorate at the University of Michigan. Influenced by a number of theoretical notions coming out about the brain and learning, including Orton's theory about cerebral dominance, Kirk studied brain-behavior relationships, with his dissertation focused on surgically creating lesions in rats and testing them for handedness and strephosymbolia (Kirk, 1935, 1936). Kirk later noted that this foray into neurophysiology had little direct bearing on his future work in learning disabilities other than to result in an aversion to terms such as "brain dysfunction," "strephosymbolia," and "dyslexia": "I feel that it is more parsimonious to give a designation in behavioral terms by stating, for example, that the child has not learned to read" (Kirk, 1976).

Kirk teamed up with Thorleif Hegge, who had recently emigrated from Norway and was brought to Wayne County as the director of research. Hegge and Kirk, along with Kirk's wife, Winifred Day Kirk, coauthored *Remedial Reading Drills* (Hegge, Kirk, & Kirk, 1936). Influenced by Orton, Fernald, and Monroe, as well as the principles of learning from the school of functional psychology at the University of Chicago, the approach taken in the remedial drills was a

carefully programmed phonic system which emphasizes sound blending and kinesthetic experiences. The program is based upon the following principles: minimal change; overlearning; prompting and confirmation; one response for each symbol; and social reinforcement. Kirk (1940) followed up this earlier interest in reading with a book on teaching slow-learning children to read. (Wiederholt, 1974, p. 32)

Kirk moved on to the Milwaukee State Teachers College and then to the University of Illinois in the late 1940s to head up the special education program. In 1949, he established the first experimental preschool for children with mental retardation. In so doing, "to be able to analyze the communication problems of younger children at the outset or before the remediation, it became necessary for us to develop tests to isolate some of these abilities and disabilities" (Kirk, 1970, p. 108).

Kirk worked for the next decade on refining an assessment approach for pinpointing specific disabilities in children. Influenced by Monroe's use of profiles (Kirk, 1976), he aimed to come up with an instrument that would provide profiles of intra-individual differences on key psycholinguistic abilities. The result was the first edition of the *Illinois Test of Psycholinguistic Abilities (ITPA)* (Kirk, McCarthy, & Kirk, 1961). We return to the *ITPA* in our discussion of the next time period (c.1960 to 1975).

### Perceptual, Perceptual-Motor, and Attention Disabilities

As with the research on language and reading disabilities, the early research on perceptual, perceptual-motor, and attention disabilities was focused on adults with brain injuries, and much of it was conducted by Europeans, many of whom had immigrated to the United States. Key figures during this period were Kurt Goldstein, Heinz Werner, Alfred Strauss, Laura Lehtinen, William Cruickshank, and Newell Kephart.

*Kurt Goldstein.* As a physician and director of a hospital for soldiers who had incurred head wounds during World War I, Kurt Goldstein studied many cases of brain injury over several years. Studying his patients, whom he referred to as "traumatic demented," within a clinical framework, he reported that they tended to display a consistent constellation of behaviors: hyperactivity, forced responsiveness to stimuli, figure-background confusion, concrete thinking, perseveration, meticulousness, and catastrophic reaction (Goldstein, 1936, 1939).

Forced responsiveness to stimuli was characterized by the soldiers' indiscriminant reactions to stimuli, a seeming inability to distinguish essential from inessential. It was as though they were driven to respond to

things in their environment, thus displaying a high degree of distractibility.

One can consider figure-background confusion as a particular manifestation of forced responsiveness to stimuli. Being from the German Gestalt School of psychology, Goldstein was interested in his patients' perception of form and figure-ground relationships. He interpreted much of the soldiers' distractibility as a deficiency in discriminating figure from background. In the case of reading, for example, they would have problems focusing on a word or phrase in the context of hundreds of words on a page of print.

Goldstein hypothesized that abstract thinking, because of its primary place in the hierarchy of intellectual behaviors, was one of the first aspects of cognition to be affected by brain injury. He noted that whenever one of the patients

must transcend concrete (immediate) experience in order to act—whenever he must refer to things in an imaginary way—he then fails.... Each problem which forces him beyond the sphere of immediate reality to that of the “possible,” to the sphere of representation, insures his failure. (Goldstein, 1939, p. 29)

Goldstein's patients had a tendency to repeat the same behaviors over and over again. This perseveration could be verbal or motor. Goldstein conjectured that it was a way that the damaged organism could rescue itself from disorganization.

Another symptom used to ward off disorganization was meticulousity. Many of the soldiers became very rigid in their daily living habits, structuring their time schedules and objects in their environment. Goldstein theorized that this penchant for routine was used by the patients to protect themselves from overstimulation and disorganized perceptions. If the patients were unsuccessful in dealing with overstimulation and disorganization, they could experience a “catastrophic reaction,” a total emotional breakdown similar to a severe temper tantrum. Goldstein attributed such outbursts to the patients' inability to make sense of the chaotic perceptual world in which they lived.

Goldstein highlighted the resiliency of the brain-damaged organism in automatically being able to compensate for disturbed functions. His conceptualization of the brain was in the Gestalt tradition of looking at the total array of behaviors rather than individual symptoms, which was in contrast to those seeking to localize specific functions with particular areas of the brain.

*Heinz Werner, Alfred Strauss, Newell Kephart, and Laura Lehtinen.* Goldstein's findings served as the basis for the research of Heinz Werner, a developmental psychologist, and Alfred Strauss, a neuropsychiatrist. With the rise to power of Hitler, Werner and Strauss both fled Germany, with Werner going first to the Netherlands and Strauss to Spain. Eventually, both ended up in the United States at the Wayne County Training School. There they teamed up to focus on whether brain damage in children with mental retardation resulted in the same symptoms as what Goldstein had found in adults who were not retarded.

Using a dichotomy introduced earlier by Larsen (1931), Strauss and Werner divided residents at Wayne County for their studies into those with exogenous versus endogenous mental retardation. Children with exogenous mental retardation were considered to have a brain disease or injury of some kind whereas those with endogenous mental retardation were presumed retarded because of heredity or a poor learning environment.

Through a series of laboratory-based studies, Werner and Strauss found the exogenous group to exhibit more forced responsiveness than the endogenous group to visual and auditory stimuli (Strauss & Werner, 1942; Werner & Strauss, 1939, 1940, 1941). For example, in one study (Werner & Strauss, 1941) they presented children with a series of slides, exposing each slide for only a fraction of a second. Each slide contained a drawing of a familiar figure such as sailboat or a cup, embedded in a background such as wavy or undulating lines. After each slide, the child was asked to identify what he or she had just seen. The exogenous group was more likely to refer to the background and was less able to identify the figure

correctly. In addition to their laboratory studies, using a behavior rating scale they found children classified as exogenous to be more disinhibited, impulsive, erratic, and socially unaccepted (Strauss & Kephart,<sup>5</sup> 1939).

Werner and Strauss's studies did not go without criticism. The focus of the criticism was on the procedures used to identify participants as exogenous versus endogenous mentally retarded. They diagnosed the child as having exogenous mental retardation if none of the immediate family members was retarded and if there was a history of prenatal, natal, or postnatal disease or damage to the brain. Additionally, a child could be diagnosed as exogenous mentally retarded purely on behavioral characteristics that previous research (e.g., Goldstein's studies) had found associated with brain injury. For example, if the child was hyperactive and distractible in the classroom, then he or she was considered to have exogenous mental retardation. This reliance on behavioral symptoms for the diagnosis of exogenous mental retardation caused some to point out the possible circularity of forming their groups on the basis of symptoms that were very similar to the ones on which they were then attempting to differentiate the children (Sarason, 1949).

Criticisms of Werner and Strauss's work were undoubtedly valid with respect to their attributing brain disease or injury as the cause of forced responsiveness to stimuli, hyperactivity, distractibility, and so forth. However, this does not deny the fact that Werner and Strauss had found consistent behavioral differences between the exogenous and endogenous groups, regardless of whether the differences were caused by brain injury or not:

It is important to point out here that up until this time mental retardation was perceived as a relatively homogenous state.... Consequently no differential or individual educational or psychological programming was initiated on their behalf. Dispelling the long-standing notion that there were no individual differences among the retarded, the work of Werner and Strauss, therefore, had revolutionary impact. (Hallahan & Kauffman, 1976, p. 6)

This impact was manifested in the form of differential educational programming for the exogenous group. Prompting the Wayne County researchers to look at individualizing instruction for the exogenous group was a survey they did of the first 500 admissions to Wayne County (Strauss & Kephart, 1939). They found that 4 or 5 years after admission to Wayne County, the IQs of the exogenous group declined 2.5 points whereas the IQs of the endogenous group increased 4.0 points. Furthermore, they investigated those children whose IQ scores could be traced back prior to institutionalization and found that the exogenous group showed a steady decline before and after institutionalization; but the endogenous group showed a decline in IQ until admittance, whereupon the trend was reversed and their IQs rose (Kephart & Strauss, 1940).

The Wayne County research team hypothesized that the endogenous group, in contrast to the exogenous group, was receiving an appropriate education. Noting the highly stimulating nature of the educational program at the school, they concluded that it was not a good fit for children who were highly distractible, impulsive, and hyperactive. Their first primary recommendation was to provide an environment in which inessential stimuli were attenuated and essential stimuli were accentuated (Werner & Strauss, 1940). This was followed by more elaboration on the teaching methods (Strauss, 1943), culminating with two classic volumes: *Psychopathology and Education of the Brain-Injured Child* (Strauss & Lehtinen, 1947) and *Psychopathology and Education of the Brain-Injured Child: Progress in Theory and Clinic* (Vol. 2; Strauss & Kephart, 1955). The first volume, in particular, described a number of educational recommendations for children with exogenous mental retardation. The focus of the recommendations was on providing a distraction-free environment for the students:

The class group is small—twelve children is the maximum number.... The classroom for these children is large enough to permit each child to be seated at a considerable distance from any other. There is only a minimum of pictures, murals, bulletin boards, and the usual stimulating visual materials of the average classroom. (Strauss & Lehtinen, 1947, p. 131)

To avoid auditory distractions, they recommended the class be on the second floor where the

windows were in front of a little used court, and to avoid visual distractions, they suggested covering the lower part of the windows with paint. In addition, they discouraged the teachers from wearing “distracting influence of ornamentation such as bracelets, earrings, dangling necklaces, and flowers in the hair” (Strauss & Lehtinen, 1947, p. 131).

In addition to focusing on manipulating the environment, Strauss and Lehtinen placed a heavy emphasis on remediating students’ perceptual disturbances:<sup>6</sup>

We cannot state too strongly that all these factors [e.g., emotional disturbance, immaturity, boredom, absence from school] can and do contribute toward reading difficulties in brain-injured children but beyond these factors one should seek for evidence of general or perceptual disturbances which, if present, should be clinically regarded as the primary causal agents and therefore the ones to be attacked. (Strauss & Lehtinen, 1947, p. 174)

*William Cruickshank.* While pursuing a doctorate at the University of Michigan, Cruickshank worked on research at Wayne County. There, he was heavily influenced by the ideas of Werner and Strauss:

There were others, but two...became particularly significant in my life: Dr. Heinz Werner and Dr. Alfred A. Strauss. These two men, along with their wives, became important persons to me and my wife, professionally and socially, and so remained until the two died. Strauss, the idea man, Werner the laboratory scientist so well epitomized in Sinclair Lewis’ *Arrowsmith*. Both were patient; both were thoughtful to suggest and to raise questions which had to be answered. Both were energetic and constantly pointed other directions in which my professional life might go—theirs! The inoculation took well, and their thinking has been mine for more than thirty years. (Cruickshank, 1976, p. 102)

Cruickshank was key in building a bridge from the Wayne County research group’s work with children with mental retardation to children of normal intelligence, many of whom today would be identified as learning disabled. The construction of this bridge began with research on children with cerebral palsy.

After receiving his doctorate, Cruickshank took a position at Syracuse University in 1946. Along with his first doctoral student, Jane Dolphin, Cruickshank embarked on a series of studies. They found that students with cerebral palsy and near-normal, normal, or above-normal intelligence performed similarly to Werner and Strauss’s children with exogenous mental retardation (Dolphin, 1950; Dolphin & Cruickshank, 1951a, b, c, d). These studies were followed by even more extensive studies of perceptual and figure-background abilities in children with cerebral palsy of near-normal, normal, or above-normal intelligence (Cruickshank, Bice, & Wallen, 1957; Cruickshank, Bice, Wallen, & Lynch, 1965). Again, the children with cerebral palsy displayed more forced responsiveness to the background than did a control group who did not have cerebral palsy.

Finding the same behavioral characteristics in children with cerebral palsy as had been found in children with exogenous mental retardation led Cruickshank and Dolphin (1951) to recommend the same educational program for students with cerebral palsy as had been developed for those with exogenous mental retardation a la Strauss and Lehtinen (1947). In particular, their recommendations focused on the provision of a distraction-free environment.

In the late 1950s, Cruickshank took the notion of educational programming for distractible and hyperactive children one step further, a step that placed his work right in the middle of the developing field of learning disabilities. He initiated a demonstration-pilot study, the Montgomery County (Maryland) Project, for 1 year. The results, along with extensive descriptions of the students and teaching methods used, were published in *A Teaching Method for Brain-Injured and Hyperactive Children* (Cruickshank, Bentzen, Ratzeburg, & Tannhauser, 1961). The project included four classes (two experimental and two control) of 10 children each. The 40 children (37 males) were matched on chronological age, IQ, instructional or achievement levels, previous experience in special education, perseveration, hyperactivity, and evidence of neurological damage. At the beginning of the year, the students ranged in age from about 6 to 9 years and

had IQs from 51 to 107. Thus, several of the students had IQs in the normal range, and several more were thought to have depressed IQ scores because of behavioral characteristics such as distractibility. Cruickshank et al. wrestled with criteria to use for inclusion in the study and ended up focusing on hyperactivity:

The authors of this study and members of the Diagnostic Team struggled for many hours to obtain a meeting of the minds regarding definitions. They were hindered by the stereotypes of the several professions and by the literature which employed such terms as *brain injury*, *brain damage*, and *brain disorder*....

The children about whom this monograph is concerned are those who are defined as hyperactive, with or without the diagnosis of brain damage. Specific brain injury is difficult to delineate in every instance....

Hyperactivity is herein defined to include...short attention span, visual and auditory distractibility, and disturbances of perception leading to dissociative tendencies. (Cruickshank et al., 1961, pp. 9–10)

Even though they focused on hyperactivity, the extensive case histories Cruickshank et al. presented indicate that many of the children, today, would be considered learning disabled and/or learning disabled with comorbid attention deficit hyperactivity disorder (ADHD).

Similar to the educational program recommended by Strauss and Lehtinen (1947), the Montgomery County Project focused on providing an environment that would help students cope with their distractibility and hyperactivity. Thus, the program emphasized (a) reducing irrelevant stimuli, (b) enhancing relevant stimuli, and (c) providing highly structured assignments. For example, students frequently used cubicles to shield them from irrelevant stimulation; windows were opaque; the classrooms were painted in a uniform color; closets and cabinets were enclosed; and materials such as calendars, handwriting charts, paintings, murals, and so forth were only put on display when needed. On the other hand, there was an attempt to make teaching materials used during instruction as colorful and stimulating as possible:

...what is meant by a structured program? For example, upon coming into the classroom the child will hang his hat and coat on a given hook—not on any hook of his choice, but on the same hook every day. He will place his lunch box, if he brings one, on a specific shelf each day. He will then go to his cubicle, take his seat, and from that point on follow the teacher's instructions concerning learning tasks, use of toilet, luncheon activities, and all other experiences.... The day's program will be so completely simplified...that the possibility of failure experiences will be almost completely minimized. (Cruickshank et al., 1961, p. 18)

It is fair to say that the primary focus of the Montgomery County project, at least as described in the 1961 publication, was on controlling the learning environment in comparison to academic instruction. The academic instruction recommendations tended to be dominated by readiness training in the form of perceptual and perceptual-motor exercises, handwriting, and arithmetic, with relatively little attention devoted to reading. Also, there was relatively little reference to phonics instruction.

Results after 1 year indicated that the program was effective in increasing perceptual-motor abilities as measured by the Bender-Gestalt test and in reducing the degree of distractibility as measured by a visual figure-background test. However, no effects were found for academic achievement or IQ. A 1-year followup found the perceptual-motor and attention advantages for the experimental group students had been eliminated.<sup>7</sup>

## EMERGENT PERIOD (c.1960 TO 1975)

From about 1960 to 1975, learning disabilities began its emergence as a formal category. It was during this period that (a) the term *learning disabilities* was introduced; (b) the federal government included learning

disabilities on its agenda; (c) parents and professionals founded organizations for learning disabilities; and (d) educational programming for students with learning disabilities blossomed, with a particular focus on psychological processing and perceptual training.

### Introduction of the Term Learning Disabilities

*Kirk's definition.* Most authorities credit Samuel Kirk as the originator of the term learning disabilities. In the first edition of his *Educating Exceptional Children*, which became arguably the most widely used college introductory text for special education of its era, Kirk (1962) defined learning disabilities as follows:

A learning disability refers to a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, writing, arithmetic, or other school subject resulting from a psychological handicap caused by a possible cerebral dysfunction and/or emotional or behavioral disturbances. It is not the result of mental retardation, sensory deprivation, or cultural and instructional factors. (Kirk, 1962, p. 263)

Addressing a group of parents of “perceptually handicapped” children a year later, Kirk (1963) again used the term learning disabilities. Several of the parents at the conference had approached Kirk before he spoke, saying that they needed help in selecting a name for their proposed national organization (Kirk, 1976). Ironically, Kirk first talked of his distaste for labels but then proceeded to introduce a term that has become, by far, the most frequently used label in special education:

I have felt for some time that labels we give children are satisfying to us, but of little help to the child himself. We seem to be satisfied if we can give a technical name to a condition. This gives us the satisfaction of closure. We think we know the answers if we can give the child a name or a label—brain injured, schizophrenic, autistic, mentally retarded, aphasia, etc. As indicated before, the term “brain injury” has little meaning to us from a management or training point of view. It does not tell me if the child is smart or dull, hyperactive or underactive.... The terms cerebral palsy, brain injured, mentally retarded, aphasic, etc. are not actually classification terms. In a sense they are not diagnostic, if by diagnosis we mean an assessment of the child in such a way that leads us to some form of treatment, management, or remediation. In addition, it is not a basic cause since the designation of the child as brain injured does not really tell us why the child is brain injured or how he got that way.

Recently, I have used the term “learning disabilities” to describe a group of children who have disorders in development in language, speech, reading, and associated communication skills needed for social interaction. In this group, I do not include children who have sensory handicaps such as blindness or deafness, because we have methods of managing and training the deaf and the blind. I also exclude from this group children who have generalized mental retardation (Kirk, 1963).

Motivated by Kirk’s speech, the parents immediately formed the Association for Children with Learning Disabilities (ACLD), now known as the Learning Disabilities Association of America (LDA), which is generally acknowledged as the largest and most influential learning disabilities parent organization in the United States.

*Bateman's definition.* In 1965 a student of Kirk’s, Barbara Bateman, offered the following definition:

Children who have learning disorders are those who manifest an educationally significant discrepancy between their estimated potential and actual level of performance related to basic disorders in the learning process, which may or may not be accompanied by demonstrable central nervous system dysfunction, and which are not secondary to generalized mental retardation, educational or cultural deprivation, severe emotional disturbance, or sensory loss. (Bateman, 1965, p. 220)

Bateman's definition was historically significant because it reintroduced Monroe's earlier notion of using a discrepancy between achievement and potential as a way of formally identifying students with learning disabilities. Whereas the notion of a discrepancy went relatively unnoticed or unused during Monroe's time, discrepancy was to become intimately linked to identifying learning disabilities shortly after Bateman's emphasis on it.

## Federal Involvement

*Task Force I and II definitions.* By the early 1960s, the federal government began to take interest in developing a definition of learning disabilities. Several federal agencies<sup>8</sup> and the Easter Seal Research Foundation cosponsored three task forces, the first two of which focused on definition. The title of the project, "Minimal Brain Dysfunction: National Project on Learning Disabilities in Children," reflected the division in the field at the time over the relevance and validity of attributing neurological causes to learning disabilities. This division was also evident in the definition that emanated from Task Force I, composed primarily of medical professionals, versus the definition developed by Task Force II, composed primarily of educators. Task Force I elected to define minimal brain dysfunction whereas Task Force II defined learning disabilities. The decision of Task Force II to provide an alternative definition to Task Force I is all the more significant in that Task Force I's charge was to come up with a definition whereas Task Force II was not charged with arriving at a definition. Instead, it was to focus on educational recommendations. However, it was the consensus of Task Force II that "because special educators in the field of learning disabilities must base educational management and teaching strategies on functional diagnostic information, a redefinition of this group of children for educational purposes was required" (Haring & Bateman, 1969, p. 2).

Task Force I defined minimal brain dysfunction as a disorder affecting

children of near average, average, or above average general intelligence with certain learning or behavior disabilities ranging from mild to severe, which are associated with deviations of function of the central nervous system. These deviations may manifest themselves by various combinations of impairment in perception, conceptualization, language, memory, and control of attention, impulse, or motor function....

These aberrations may arise from genetic variations, biochemical irregularities, perinatal brain insults or other illnesses or injuries sustained during the years which are critical for the development and maturation of the central nervous system, or from unknown causes. (Clements, 1966, pp. 9-10)

Task Force II could not agree on a single definition of learning disabilities. Instead, it put forward two definitions; the first stressed the notion of intra-individual differences included in Kirk's definition, the second stressed discrepancy between intelligence and achievement contained in Bateman's definition. The first definition held that

Children with learning disabilities are those (1) who have educationally significant discrepancies among their sensory-motor, perceptual, cognitive, academic, or related developmental levels which interfere with the performance of educational tasks; (2) who may or may not show demonstrable deviation in central nervous system functioning; and (3) whose disabilities are not secondary to general mental retardation, sensory deprivation, or serious emotional disturbance. (Haring & Bateman, 1969, pp. 2-3)

The second definition stated that

Children with learning disabilities are those (1) who manifest an educationally significant discrepancy between estimated academic potential and actual level of academic functioning as related to dysfunctioning [sic] in the learning process; (2) may or may not show demonstrable deviation in central nervous system functioning; and (3) whose disabilities are not secondary to

general mental retardation, cultural, sensory and/or educational deprivation or environmentally produced serious emotional disturbance. (Haring & Bateman, 1969, p. 3)

*National Advisory Committee on Handicapped Children (NACHC) definition.* Toward the end of the 1960s, the U.S. Office of Education (USOE) formed a committee to issue a report on learning disabilities and to write a definition of learning disabilities that might be used as a basis for legislation for funding programs. The committee, chaired by Samuel Kirk, offered a definition similar to Kirk's 1962 definition:

Children with special (specific) learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken and written language. 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 that are due primarily to visual, hearing or motor handicaps, to mental retardation, emotional disturbance, or to environmental disadvantage. (USOE, 1968, p. 34)

*Legislation for learning disabilities.* The original version of the Education of the Handicapped Act (EHA), passed in 1966, did not include learning disabilities as one of the categories of handicapping conditions eligible for special education assistance. Even though parents of children with learning disabilities advocated including their children in the law, they were outmaneuvered by parents of children with other, more traditional disabilities, who

convinced key Congressional staff persons that the definition of LD was so broad that it could include any economically disadvantaged child whose circumstances resulted in educational problems. They argued that such children, already assisted by the Congress through Title I of the Elementary and Secondary Education Act, would use up all the resources needed by children who were, in fact, disabled. (Martin, 1987)

By 1969, advocates supporting legislation proposed by the Bureau for the Education of the Handicapped (BEH) were able to exert enough pressure to have legislation passed for learning disabilities—the Children with Specific Learning Disabilities Act of 1969. This act, which adopted the NACHC definition of learning disabilities, supported service programs for students with learning disabilities for the first time in the form of model projects. As part of the leverage to convince Congress of the need for funding for learning disabilities, advocates used the NACHC report, which stated that few of the estimated 1% to 3% of the school-age population with learning disabilities were receiving services.

In 1970, Public Law 91-230 consolidated into one act a number of previously separate federal grant programs related to the education of children with disabilities. Under this law Congress still did not recognize learning disabilities as a formal category eligible for support to local schools through Part B (Grants to States) of EHA. However, Part G of the law, the earlier law for Children with Specific Learning Disabilities, continued to provide authority to the USOE to award discretionary grants for learning disabilities to support teacher education, research, and model service delivery programs (Martin, 1987).

Two significant programs established by BEH under Part G were the Child Service Demonstration Projects (CSDPs) and the Leadership Training Institute in Learning Disabilities (LTI). From 1971 to 1973, 43 states set up CSDPs. The LTI, housed at the University of Arizona, prepared documents on broad topics related to service, research, and training in learning disabilities (Bryant, 1972; Bryant, Kass, & Wiederholt, 1972), and staff of the LTI provided consultant services to the CSPDs (Wiederholt, 1974). This program followed BEH's strategy for early childhood models and technical assistance (E. W. Martin, personal communication, January 16, 2001).

### Parent and Professional Organizations Founded

During the late 1950s, parents of children who would have qualified as learning disabled had there been such a category were starting to make inroads into having their children served. Parents were beginning to

bend the ear of sympathetic and progressive educational administrators. Parent advocacy groups at the local and state level were starting to spring up around the country.

In April of 1963, several of these groups gathered together in Chicago for a conference entitled, "The Conference on Exploration into Problems of the Perceptually Handicapped Child." As noted earlier, Kirk addressed this group and introduced the term, learning disabilities. The following year, the Association for Children with Learning Disabilities was formally established.

In 1968, the first major professional organization dealing with learning disabilities, the Division for Children with Learning Disabilities (DCLD) of the Council for Exceptional Children (CEC) was founded. Its first president was Raymond Barsch.

### Educational Programming: Dominance of Psychological Processing and Visual Perceptual Training

The Emergent Period witnessed a proliferation of training programs specifically designed for children with learning disabilities. The vast majority of these educational approaches assumed that children with learning disabilities suffered from psychological processing and/or visual-perceptual processing deficits. We divide the educational programs into those focused on language disabilities and those focused on visual and visual-motor disabilities.

*Language disabilities.* During this period, Kirk's conceptualization of language disabilities, using the *ITPA*, had a major impact on the field. The development of the *ITPA* grew out of an earlier project of Kirk's focused on preschool children with mental retardation (Kirk, 1976). In 1949, Kirk began a study of the effects of early intervention on the development of children with mental retardation, setting up experimental and contrast classes in both an institutional and a community setting. The children were studied for 3 to 5 years, and the results were generally successful<sup>9</sup> (Kirk, 1958). In directing the early intervention study, Kirk and his colleagues worked on coming up with diagnostic tests that would be useful for instruction. Because no measures were in existence, they began to develop tests to determine the individual perceptual, linguistic, and memory disabilities of the children.

Frustrated with these early attempts to build a diagnostic test of discrete abilities, Kirk enrolled in a course taught by Charles Osgood at the University of Illinois. Kirk and his colleagues eventually used Osgood's (1957) communication model as a basis for the first experimental edition of the *ITPA* (Kirk et al., 1961), with a revised edition published in 1968 (Kirk, McCarthy, & Kirk, 1968). The *ITPA* consisted of 12 subtests divided along three dimensions: (a) channels of communication, (b) psycholinguistic processes, and (c) levels of organization. Channels referred to the modalities (auditory-vocal or visual-motor) through which sensory information is received and then expressed. Psycholinguistic processes included reception, expression, and organization. Organization was the internal manipulation of information of concepts and linguistic skills. Levels of organization included the representational, dealing with symbolic behavior, and the automatic, dealing with habit chains. The 12 subtests were: visual reception, auditory reception, visual association, auditory association, verbal expression, motor expression, visual sequential memory, auditory sequential memory, visual closure, auditory closure, grammatic closure, and sound blending.

Depending on the particular profile that a child showed, a teacher was to concentrate remediation on various areas. Several authors came up with training activities for use with the *ITPA* (Bush & Giles, 1969; Karnes, 1968; Kirk & Kirk, 1971; Minskoff, Wiseman, & Minskoff, 1974).

Although use of the *ITPA* was widespread throughout the 1960s, by the 1970s it began to wane in popularity. Numerous critics of the *ITPA* surfaced (e.g., Engelmann, 1967; Hallahan & Cruickshank, 1973; Hammill & Larsen, 1974; Mann, 1971; Ysseldyke & Salvia, 1974). The criticism focused on the psychometric properties of the instrument as well as the efficacy of the training procedures.

Even though the *ITPA* fell out of favor,<sup>10</sup> it was historically important for at least two reasons. First, it reinforced the notion that children with learning disabilities have intra-individual differences. Second, it

underlined the concept of using assessment to guide instruction, sometimes called diagnostic-prescriptive teaching. Both of these ideas had been championed by Monroe (1932) earlier, but they did not gain widespread popularity until the extensive use of the *ITPA*.

While the *ITPA* was the dominant approach to language problems of children with learning disabilities in the 1960s, there were other language theorists who also garnered considerable support. Perhaps the most notable was Helmer Myklebust. Myklebust's original work was in the area of the deaf. However, he found that many children referred to his clinic had normal hearing acuity, but they exhibited poor auditory comprehension.

A driving force behind Myklebust's orientation was his belief that many children with learning disabilities, which he referred to as "psychoneurological learning disabilities," had problems in interneurosensory learning, the ability to combine information from two sensory modalities. For this reason, he eschewed Fernald's VAKT approach (Hallahan & Cruickshank, 1973).

Myklebust teamed with Doris Johnson to develop remedial techniques, primarily for receptive and expressive language problems (Johnson & Myklebust, 1967). Some of their suggestions for remediating receptive language problems were that: (a) training comprehension skills should come before training expressive skills, (b) whole words and sentences should be trained rather than nonsense words or isolated sounds, and (c) words sounding different should be taught before words that have sounds that are difficult to discriminate.

Johnson and Myklebust focused on two types of expressive language problems relevant to children with learning disabilities: reauditorization deficits, or problems in word retrieval, and syntax deficits. For reauditorization deficits they suggested such things as rapid naming drills using real words. For problems with syntax, rather than teaching grammatical rules, they provided "a series of sentences auditorially, sufficiently structured with experience so the child will retain and internalize various sentence plans" (Johnson & Myklebust, 1967, p. 137).

*Visual and visual-motor disabilities.* There was a proliferation of training programs developed in the 1960s for visual perceptual and/or visual-motor disabilities. The most notable figures promoting these programs were Newell Kephart, Marianne Frostig, Gerald Getman, Raymond Barsch, Glen Doman, and Carl Delacato.

Newell Kephart probably did the most to create an upsurge in interest in visual and visual-motor problems in children with learning disabilities. His major publication was *The Slow Learner in the Classroom* (Kephart, 1960, 1971), which contained his theoretical ideas as well as numerous perceptual-motor training exercises.

Influenced by his earlier tenure at the Wayne County Training School, Kephart came up with even more extensive theoretical conceptualizations and practical suggestions than had his mentors, Strauss, Werner, and Lehtinen. Kephart based his work heavily on the then-popular theories of visual perceptual development of Heinz Werner (1948, 1957), Harry Harlow (1951), and John and Eleanor Gibson (1955). For example, he relied on Werner's theory that perceptual development in children progresses from being undifferentiated to being broken down into parts to the integration and reformulation of the parts into a whole.

The most important aspect of Kephart's theory was what he referred to as the "perceptual-motor match," which he based largely on Brown and Campbell's (1948) servomechanistic model of perceptual development:

When the output pattern has been generated, it is sent down the efferent nerves...and response results. On the way,...a portion of the output pattern is...fed back into the system at the output end. The presence of feedback in the perceptual process makes the system a servomechanism. (p. 60)

The perceptual-motor match relied on two assumptions: (a) motor development precedes visual development, and (b) kinesthetic sensation resulting from motor movement provides feedback, which can be used for monitoring visual-motor activities. Based on these assumptions, especially the former, Kephart advocated that motor training precede visual perceptual training.

Another important aspect of Kephart's approach was his belief that laterality, the ability to discriminate the left from the right side of the body, is necessary in order for children to discriminate left from right out in space. He viewed children who had difficulties with reversals (e.g., problems discriminating *b* from *d*) as needing training in laterality.

Marianne Frostig, who founded the Marianne Frostig Center of Educational Therapy in Los Angeles, California, and was its executive director from 1947 to 1970, developed *The Marianne Frostig Developmental Test of Visual Perception* (Frostig, Lefever, & Whittlesey, 1964) as well as a commercial training program (Frostig & Horne, 1964). The paper-and-pencil test assessed (a) eye-motor coordination, (b) figure-ground visual perception, (c) form constancy, (d) position in space, and (e) spatial relations. The Frostig-Horne program had specific exercises for each of these areas.

Gerald Getman, an optometrist who had collaborated with the noted developmental psychologist Arnold Gesell at Yale University in the 1940s (e.g., Gesell, Ilg, Bullis, Getman, & Ilg, 1949), began offering summer training programs for practitioners in the 1950s on remediation of visual-motor disabilities in children.<sup>11</sup> He and his colleagues published a manual of training activities for children with visual-perceptual and visual-motor problems (Getman, Kane, Halgren, & McKee, 1964). The activities focused on general coordination, balance, eye-hand coordination, eye movements, form perception, and visual memory.

Raymond Barsch<sup>12</sup> developed what he called the "Movigenic Curriculum" (Barsch, 1967). One of Barsch's major theoretical assumptions was that efficient movement in the environment was necessary for survival. Thus, many of the 12 areas of his curriculum focused on movement: muscular strength, dynamic balance, body awareness, spatial awareness, tactual dynamics, kinesthesia, auditory dynamics, visual dynamics, bilaterality, rhythm, flexibility, and motor planning.

Glen Doman, a physical therapist, founded the Institutes for the Achievement of Human Potential in Philadelphia, Pennsylvania, in 1955. He along with Carl Delacato, an educational psychologist, developed a controversial approach to treating children with brain injury.<sup>13</sup> Their program of "neurological organization" was based on three assumptions: (a) the development of the individual, ontogeny, recapitulates the development of the species, phylogeny; (b) children with brain injury need to be trained to have cerebral dominance; and (c) training procedures need to change the brain itself, not just symptoms (Delacato, 1959, 1963, 1966).

The Doman-Delacato program enjoyed considerable popularity for a time, but it eventually met with overwhelming criticism from the field (Robbins & Glass, 1969). In 1968, a number of professional organizations<sup>14</sup> issued a statement criticizing the Institutes on four major points: (a) the promotional methods placed parents in an awkward position if they decided against using the treatment; (b) the training regimens were very demanding, which might cause parents to neglect other family needs and restrict the child from engaging in age-appropriate normal activities; (c) the claims for success were not backed up by credible research; and (d) the theoretical foundation of the methods were questionable.

Although no official statements came out against the perceptual and perceptual-motor training programs of Kephart, Frostig, Getman, and Barsch, they were the topic of several research studies. Most of these studies found that, although these programs were sometimes effective in improving perceptual and/or perceptual-motor development, they were ineffective in improving academic performance (Cohen, 1969, 1970; Hammill & Larsen, 1974). Probably because of the ubiquitous research-to-practice gap in education, the use of perceptual and perceptual-motor training hung on for a period of time, but by the mid-1980s its use had waned considerably.

## SOLIDIFICATION PERIOD (C.1975 TO 1985)

The period from about 1975 to 1985 was a period of relative stability as the field moved toward consensus on the definition of learning disabilities as well as methods of identifying students with learning disabilities. It was a period of considerable applied research, much of it funded by the USOE, that resulted in empirically validated educational procedures for students with learning disabilities. There was some upheaval with respect to professional organizations, but this unrest was relatively brief.

### Solidification of the Definition

In 1975, Congress passed Public Law 94-142, the Education for All Handicapped Children Act. With this law, learning disabilities finally achieved official status as a category eligible for funding for direct services.

*U.S. Office of Education 1977 definition.* By the early 1970s, the NACHC definition of 1968 had become the most popular one among state departments of education (Mercer, Forgnone, & Wolking, 1976). This no doubt figured into the USOE's virtual adoption of the NACHC definition for use in the implementation of P.L. 94-142:

The term "specific learning disability" means a disorder in one or more of the psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. The term does not include children who have learning disabilities which are primarily the result of visual, hearing, or motor handicaps, or mental retardation, or emotional disturbance, or of environmental, cultural, or economic disadvantage. (USOE, 1977, p. 65083)

The 1977 USOE definition, with minor wording changes, has survived until today as the definition used by the federal government. However, that does not mean that other definitions have not been promulgated by parent and professional groups. Examples of two developed during this period were those of the National Joint Committee on Learning Disabilities (NJCLD) and the ACLD.

*NJCLD definition.* In 1978, the major learning disabilities professional organizations as well as the ACLD formed the NJCLD in order to attempt to provide a united front in addressing issues pertaining to learning disabilities. In 1981, the NJCLD developed the following definition:

Learning disabilities is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient-inappropriate instruction, psychogenic factors), it is not the direct result of those conditions or influences. (Hammill, Leigh, McNutt, & Larsen, 1981, p. 336)

In formulating this definition, the NJCLD was purposeful in its exclusion of any mention of psychological processes, which were integral to the USOE definition. By not mentioning psychological processes, the NJCLD distanced itself from perceptual and perceptual-motor training programs, which had lost favor in the research community.

### Federal Regulations for Identification of Learning Disabilities

When P.L. 94-142 was implemented in 1977, in addition to the inclusion of a definition of learning disabilities, the federal government issued regulations pertaining to the identification of students with

learning disabilities. Because the federal definition was not explicit about how states and local school systems were to identify students as learning disabled, the regulations were intended to provide an operational definition for use in identification. The USOE first proposed a formula that defined a severe discrepancy as “when achievement in one or more of the areas falls at or below 50% of the child’s expected achievement level, when age and previous educational experiences are taken into account” (USOE, 1976, p. 52405).

Public response to the notion of a formula was overwhelmingly negative. Thus, no formula was included in the definition or regulations. However, the USOE stayed with the idea of an ability-achievement discrepancy in the regulations:

- (a) A team may determine that a child has a specific learning disability if:
  - (1) The child does not achieve commensurate with his or her age and ability levels in one or more of the areas listed in paragraph (a) (2) of this section, when provided with learning experiences appropriate for the child’s age and ability levels; and
  - (2) The team finds that the child has a severe discrepancy between achievement and intellectual ability in one or more of the following areas:
    - (i) Oral expression;
    - (ii) Listening comprehension;
    - (iii) Written expression;
    - (iv) Basic reading skill;
    - (v) Reading comprehension;
    - (vi) Mathematics calculation; or
    - (vii) Mathematics reasoning

(USOE, 1977, p. 65083)

### Empirically Validated Educational Procedures

The heavy criticism of psycholinguistic process and perceptual process training programs toward the end of the previous period had left the field of learning disabilities with a relative void of research-based educational practices. Beginning in the 1970s several learning disabilities researchers began to turn their attention to developing educational methods for students with learning disabilities. A major impetus for this effort was the USOE’s funding of five research institutes from 1977 to 1982. These institutes were housed at Columbia University, the University of Illinois at Chicago, the University of Kansas, the University of Minnesota, and the University of Virginia. In addition to the work of the institutes, another major body of influential intervention work was that which focused on Direct Instruction.

*Columbia University.* The Columbia institute, directed by Dale Bryant, focused on information processing difficulties of students with learning disabilities (Connor, 1983). The institute conducted research in five areas: memory and study skills (led by Margaret Jo Shepherd), arithmetic (Jeanette Fleischner), basic reading and spelling (Bryant), interaction of characteristics of the text and the reader (Joanna Williams), and reading comprehension (Walter MacGinitie).

*University of Illinois at Chicago.* The main foci of the Illinois institute, directed by Tanis Bryan, were on the social competence and attributions about success and failure of children with learning disabilities (Bryan, Pearl, Donahue, Bryan, & Pflaum, 1983). Social competence was an area that had largely been ignored by researchers up to this point. By focusing on social competence, the Illinois team validated the ACLD’s concern for social skills evident in their definition of learning disabilities. Bryan and her colleagues established that students with learning disabilities have deficits in the pragmatic use of language, which interferes with their ability to make and keep friends. For example, they found that such students have problems in adapting their communication style to fit the listener, are less persuasive in conversations, and are less apt to request clarification when faced with ambiguous information.

With respect to attributions, the Illinois researchers found that students with learning disabilities tend to

attribute their failures to lack of ability, but attribute their successes to luck or the task being relatively easy. Furthermore, mothers of children with learning disabilities believe that their children's successes are due more to luck than ability and that their failures are due more to lack of ability than to bad luck.

*The University of Kansas.* Researchers at the Kansas institute, directed by Donald Deshler, focused on educational interventions for adolescents with learning disabilities (Schumaker, Deshler, Alley, & Warner, 1983). The focus on adolescents filled a void in the research literature on learning disabilities. By focusing on older children, the Kansas team reinforced the ACLD's concern for the lifelong nature of learning disabilities evident in their definition. The Kansas researchers first conducted epidemiological studies to determine the characteristics of adolescents with learning disabilities. Among other things, they found that many of these students have deficiencies in study skills, learning strategies, and social skills.

Based on what they had found to be the characteristics of adolescents with learning disabilities, the Kansas team developed a variety of educational strategies for working on academic problems, called the Learning Strategies Curriculum. They also field-tested a number of social skills strategies.

*University of Minnesota.* Directed by James Ysseldyke, the Minnesota institute primarily focused on two areas: (a) the decision-making process related to identification of students with learning disabilities, and (b) curriculum-based assessment (CBA) procedures (Ysseldyke, Thurlow, et al., 1983). With respect to identification, they raised concerns about whether students identified as learning disabled could be reliably differentiated from low achievers:

After five years of trying, we cannot describe, except with considerable lack of precision, students called LD. We think that LD can best be defined as "whatever society wants it to be, needs it to be, or will let it be" at any point in time. Who have other researchers studied? The 1% of the school-age population that some experts think are LD or the 85% of the school-age population other experts think are LD? We think researchers have compiled an interesting set of findings on a group of students who are experiencing academic difficulties, who bother their regular classroom teachers and who have been classified by societally sanctioned labelers in order to remove them, to the extent possible, from the regular education mainstream. (Ysseldyke, Thurlow, et al., 1983, p. 89)

Led by Stanley Deno, the Minnesota researchers working on CBA were interested in developing a method of assessing students' progress in the curricula to which they were exposed. They saw this as providing more educationally useful information than the typical, nationally-normed, standardized tests of achievement. Deno and his colleagues found that students with learning disabilities and their teachers benefit from CBA.

*University of Virginia.* The Virginia institute, directed by Daniel Hallahan, focused on children with learning disabilities who also had attention problems (Hallahan et al., 1983). The Virginia researchers documented metacognitive problems in the students and developed cognitive behavior modification techniques for the remediation of those problems. In particular, they had students use self-monitoring techniques while engaged in academic work. Their findings indicated that self-monitoring of attention generally results in increased academic productivity.

The Virginia institute also focused on providing strategies for direct use on academic tasks. Led by John Lloyd, this research on academic strategy training resulted in a number of specific techniques for instruction in reading and math.

In assessing the impact of the institutes as a group, Keogh (1983) noted that four of the institutes approached learning disabilities as a strategic, information processing problem and developed educational interventions accordingly: "I am impressed by the effectiveness of the experimental interventions developed and tested. In this sense these data are among the most optimistic to be found in the literature" (Keogh, 1983, p. 123).

McKinney (1983), likewise, noted that

the central concept that emerges from this research is that many LD students have not acquired efficient strategies for processing task information and therefore cannot use their abilities and experience to profit from conventional instruction. Most of this research, however, also demonstrates that they are capable of acquiring the strategies that account for competent performance and that they can improve their academic skills and adaptive functioning when they are taught task-appropriate strategies. This conceptualization of learning disabilities contrasts with the traditional view that emerged during the 1960's that LD students suffered from relatively enduring deficits in the development of specific abilities, such as perception and language, which impaired their capacity to perform academic tasks. (McKinney, 1983, p. 131)

McKinney, however, was critical of some of the Minnesota institute's conclusions regarding identification of learning disabilities:

First, the conclusions of this institute and the implications they draw suggest that LD students are not handicapped in any significant way apart from underachievement. In my opinion this conclusion is not supported by the evidence presented in the Minnesota report or by that obtained by the other four institutes....

Second, the conclusions of this group imply not only that special education services for LD students are ineffective but that they are unnecessary and potentially do more harm than good. The evidence for this implication appears to be based on research of placement team decision making as opposed to research on instructional processes and intervention.

Third, ...the idea that we provide intervention at the point of referral has intuitive appeal, ...and may be worthy of additional consideration...; but the issues of what constitutes intervention, exactly who receives the intervention, who provides the intervention, and whether parents are involved in planning the intervention were not discussed in the report. (McKinney, 1983, pp. 137-138)

Whether Keogh's and McKinney's praise of some of the institutes' work and McKinney's criticisms of some of the Minnesota institute's work are justifiable is debatable. There is no doubt that all of the institutes' work has remained influential up until the present day in terms of theory and practice. With particular reference to the Minnesota work, there are those, today, who agree with McKinney's criticisms and those who do not. We address some of these influences and disagreements in our discussion of the Turbulent Period.

*Direct Instruction.* In the 1970s, Sigfried Engelmann, Wesley Becker, and their colleagues developed a number of intervention programs for language, reading, and math (Englemann, Becker, Hanner, & Johnson, 1978, 1988; Englemann & Osborn, 1977). Often referred to as Direct Instruction, these programs emphasized the systematic teaching of language subskills and the integration of these subskills into broader language competence. Several studies, including large-scale evaluations such as Project Follow-Through (Abt Associates, 1976, 1977) found Direct Instruction highly effective.

#### Learning Disabilities Professional Organization Turmoil

Toward the end of the 1970s and beginning of the 1980s, several members of DCLD began voicing dissatisfaction with their parent organization, CEC. Among other things, they complained that DCLD was not receiving its fair share of services from CEC. In addition, they were upset with CEC's policy of not allowing individuals to be members of DCLD without being a member of CEC. More relevant to our discussion of the history of the learning disabilities field, however, were philosophical differences brewing between the leaders in DCLD. Many of the younger, rising leaders in learning disabilities were disenchanted with the older guard's tacit, and sometimes explicit, acceptance of assessment and intervention approaches embracing perceptual and psychological processing, such as the *ITPA*.

In 1982, the Council for Learning Disabilities (CLD) was founded as an organization separate from CEC. Several key figures in the old DCLD immediately organized and petitioned CEC to start a new division. In 1983, the Division for Learning Disabilities (DLD) of CEC was established, with its first president being Sister Marie Grant.

Over the years the philosophies of the two organizations have become more and more similar. Today, there are virtually no philosophical differences between the two organizations, and many professionals, especially academics, belong to both organizations. In fact, some have pointed out that having two organizations—CLD, with about 3,000 members, and DLD, with about 10,000 members—makes it difficult to provide a united front with respect to advocacy for learning disabilities.

## TURBULENT PERIOD (C.1985 TO 2000)

During the most recent period of learning disabilities history, several things have occurred that have solidified the field of learning disabilities even further, but several issues have also threatened to tear the field apart. Driving much of the concern for the latter issues is the extraordinary growth in the prevalence of learning disabilities. From 1976–1977 to 1998–1999, the number of students identified as learning disabled has doubled. There are now more than 2.8 million students identified as learning disabled, which represents just over half of all students with disabilities (USOE, 2000). Although some (Hallahan, 1992) have argued that there may be good reasons for some of this growth, most authorities acknowledge that there is a very good chance that many children are being misdiagnosed as learning disabled.

Areas in which there has been further solidification are definition, the research strands of the learning disabilities research institutes, research on phonological processing, and research on biological causes of learning disabilities. Issues contributing to the turbulence in the field include concern about identification procedures, debate over placement options, and denunciation of the validity of learning disabilities as a real phenomenon by constructivists.

### Learning Disabilities Definitions

Early during this period, several new and revised definitions surfaced: the ACLD (now the LDA) definition of 1986, the Interagency Committee on Learning Disabilities (ICLD) definition of 1987, and the NJCLD revised definition of 1988. In the meantime, the definition in federal law covering learning disabilities remained virtually unchanged.

*ACLD/LDA definition (1986).* The LDA definition is distinctive for its emphasis on the lifelong nature of learning disabilities, its lack of an exclusion clause, and its reference to adaptive behavior:

Specific Learning Disabilities is a chronic condition of presumed neurological origin which selectively interferes with the development, integration, and/or demonstration of verbal and/or nonverbal abilities. Specific Learning Disabilities exists as a distinct handicapping condition and varies in its manifestations and in degree of severity. Throughout life, the condition can affect self-esteem, education, vocation, socialization, and/or daily living activities. (ACLD, 1986, p. 15)

*ICLD definition (1987).* The ICLD, consisting of representatives from several federal agencies, was charged by Congress to report on several issues. Although Congress did not direct them to do so, they did formulate a definition. Their definition was essentially the same one as the 1981 NJCLD definition, except for two changes. It mentioned deficits in social skills as a type of learning disability, and it added attention deficit disorder as a potential comorbid condition with learning disabilities:

Learning disabilities is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities, or of social skills. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment,

mental retardation, social and emotional disturbance), with socioenvironmental influences (e.g., cultural differences, insufficient or inappropriate instruction, psychogenic factors), and especially with attention deficit disorder, all of which may cause learning problems, a learning disability is not the direct result of those conditions or influences. (ICLD, 1987, p. 222)

*NJCLD revised definition (1988).* The NJCLD revised definition was in response to the LDA definition's emphasis on the lifelong nature of learning disabilities and the ICLD's listing of social skills deficits as a type of learning disability. The NJCLD revised definition agreed with the former but disagreed with the latter:

Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the life span. Problems of self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability. Although learning disabilities may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance) or with extrinsic influences (such as cultural differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences. (NJCLD, 1988, p. 1)

*Individuals with Disabilities Education Act (IDEA) Reauthorized definition (1997).* The definition in federal law has remained virtually unchanged since the one included in P.L. 94-142:

A. IN GENERAL.—The term “specific learning disability” means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations.

B. DISORDERS INCLUDED.—Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

C. DISORDERS NOT INCLUDED.—Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. (IDEA Amendments of 1997, Sec. 602(26), p. 13)

### Continuation of Research Strands of the Learning Disabilities Research Institutes

As we noted earlier, Keogh (1983) noted that four of the learning disabilities research institutes funded by the USOE in the late 1970s and early 1980s (Columbia University, University of Illinois at Chicago, University of Kansas, University of Minnesota, and University of Virginia) approached learning disabilities as a strategic, information processing problem and developed their interventions within this framework. She pointed out that the institutes' data on outcomes were very promising. McKinney (1983) reported that the institutes' intervention research demonstrated that students with learning disabilities are capable of learning task-appropriate strategies that enable them to succeed in academic learning and adaptive functioning. Although it is conjecture, it is easy to postulate that the institutes' rigorous research standards and encouraging findings provided a springboard for future research.

*Columbia University.* The Columbia institute's research in reading most likely helped facilitate the proliferation of reading intervention research that has occurred in the field of learning disabilities. For example, Lyon (1998) reported that the National Institutes of Health (NIH) has received more than \$25 million to study how students with and without disabilities learn to read. Today, findings from the NIH studies are having a significant impact on the reading instruction provided youngsters with learning disabilities. Judith Birch of Columbia University recently teamed with numerous NIH researchers to

develop a very informative video series that presents research-based practices in teaching reading to students with learning disabilities.

*University of Illinois at Chicago.* The Chicago institute's research introduced social competence as an area worthy of investigation. The importance of this affective side of learning disabilities was very timely in that it quickly captured the attention of many educators. For example, during the 1980s, social skill deficits were featured in three nationally disseminated definitions of learning disabilities (i.e., ACLD/LDA in 1986; ICLD in 1987; NJCLD in 1988).

Gresham (1988) reported that 75% of all published articles in social skills were published between 1983 and 1988. Given the concern for safety in America's schools, such affective topics as social competence, self-concept, dependency, loneliness, suicide, drug usage, and impulsivity are certain to attract more attention. These topics are discussed in the recent learning disabilities literature and research (Mercer, 1997). Unfortunately, the goal of developing highly effective interventions for social skills still remains elusive (Forness & Kavale, 1996; Vaughn, McIntosh, & Spencer-Rowe, 1991; Vaughn & Sinugab, 1998).

*University of Kansas.* The work of the Kansas institute has not only continued but also expanded. Since 1978, the University of Kansas Center for Research on Learning (the parent organization for the Institute for Research in Learning Disabilities) has continued to focus on the mission of designing and validating interventions for adolescents and young adults with learning disabilities. In this organization, more than \$20 million of contracted research has been conducted on adolescents and young adults with learning disabilities (Deshler, Ellis, & Lenz, 1996).

*University of Minnesota.* It is fair to say that the research on assessment at the Minnesota institute has made diagnosticians more aware of the specific weaknesses of standardized tests and the decision-making processes based on assessment data. The assessments in special education continue to be an area of substantial controversy (e.g., over-representation of minorities in special education) and more research is needed.

The Minnesota research initiative that focused on CBA has also influenced many assessment practices nationwide in special education. CBA refers to any approach that uses direct observation and recording of a student's performance in the school curriculum as a basis for obtaining information to make instructional decisions (Deno, 1987). Specific procedures include assessing students' academic skills with repeated rate samples using stimulus materials taken from the students' curriculum. The primary uses of curriculum-based measurement (CBM) are to establish district or classroom performance standards, identify students who need special instruction, and monitor individual student progress toward long-range goals. Over the years, researchers have garnered considerable evidence supporting the positive association between data-based monitoring and student achievement gains. In a meta-analysis of formative evaluations, Fuchs and Fuchs (1986) found that data-based programs that monitored student progress and evaluated instruction systematically produced 0.7 standard deviation higher achievement than nonmonitored instruction. This represents a gain of 26 percentage points. Moreover, CBM measures have good reliability and validity (Fuchs, 1986; Tindal & Marston, 1990).

*University of Virginia.* The work at the Virginia institute appears to have provided a springboard for much further research on attention deficits, metacognition, and instruction. Since 1980, attention deficits have been featured in the subsequent editions of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV). Moreover, there is a high degree of comorbidity between learning disabilities and ADHD (Lyon, 1995b).

Metacognitive deficits have also continued to receive much attention. For example, from a knowledge base of 11,000 statistical findings across 28 categories, Wang, Haertel, and Walberg (1993/1994) found that the metacognitive and cognitive processes of students ranked second and third on their influence of student learning. Cognitive behavior modification techniques highlighted by the Virginia institute are an integral part of many widely used instructional materials. For example, teacher modeling using think-alouds is an integral part of the University of Kansas learning strategies (Deshler et al., 1996) and Doug and Lynn

Fuchs have used self-monitoring in some of their intervention packages.

## Research on Phonological Processing

Given that the majority of individuals with learning disabilities experience reading difficulties, the research on phonological awareness has the potential to improve the assessment and intervention practices used to treat learning disabilities. Adams (1990) reported that the discovery of the nature and importance of phonemic awareness is considered to be the single greatest breakthrough in reading in the 20th century.

*Definition and nature of phonemic awareness.* The National Reading Panel (2000) noted that phonemes are the smallest units of spoken language and that phonemic awareness is the ability to focus on and manipulate phonemes. Reid Lyon, Chief of the Child Development and Behavior Branch of the National Institute of Child Health and Human Development (NICHD) of the NIH, periodically reports on the research findings of NIH studies concerning reading development for children with and without reading difficulties. In a 1998 report to the U.S. Senate Committee on Labor and Human Resources, Lyon (1998) discussed the following specific findings related to phonemic awareness, early intervention, and poor readers:

In contrast to good readers who understand that segmented units of speech can be linked to letters and letter patterns, poor readers have substantial difficulty developing this “alphabetic principle.” The culprit appears to be a deficit in phoneme awareness—the understanding that words are made up of sound segments called phonemes. Difficulties in developing phoneme awareness can have genetic and neurobiological origins or can be attributable to a lack of exposure to language patterns and usage during the preschool years. The end result is the same however. Children who lack phoneme awareness have difficulties linking speech sounds to letters—their decoding skills are labored and weak, resulting in extremely slow reading. This labored access to print renders comprehension impossible. (p. 8)

*Applications of phonemic awareness research.* Phonemic awareness skills allow for early assessment. For example, phonemic assessments in kindergarten and first grade serve as powerful predictors of children who will have reading difficulties. Lyon (1998) has noted that these assessments are efficient (i.e., they take approximately 20 minutes) and predict with 80% to 90% accuracy who will become good or poor readers.

It is also recognized that the development of phonemic awareness is a necessary but not sufficient condition for learning to read fluently. Phonemic awareness training must be combined with other types of reading instruction to improve reading skills of poor readers to average levels.

Lyon (1998) has highlighted the need for multiple interventions:

We have learned that for 90% to 95% of poor readers, prevention and early intervention programs that combine instruction in phoneme awareness, phonics, fluency development, and reading comprehension strategies, provided by well trained teachers, can increase reading skills to average reading levels. However, we have also learned that if we delay intervention until nine-years-of-age, (the time that most children with reading difficulties receive services), approximately 75% of the children will continue to have difficulties learning to read throughout high school. (p. 9)

*Definition of dyslexia.* Phonemic awareness research has already had an influence on the definition of dyslexia. In 1994, the Research Committee of the Orton Dyslexia Society (now known as the International Dyslexia Association), along with representatives from the National Center on Learning Disabilities and the NICHD, set forth the following working definition of dyslexia:

Dyslexia is one of several distinct learning disabilities. It is a specific language-based disorder of constitutional origin characterized by difficulties in single word decoding, usually reflecting insufficient phonological processing abilities. These difficulties in single word decoding are often

unexpected in relation to age and other cognitive and academic abilities; they are not the result of generalized developmental disability or sensory impairment. Dyslexia is manifested by variable difficulty with different forms of language, often including, in addition to problems reading, a conspicuous problem with acquiring proficiency in writing and spelling. (Lyon, 1995a, p. 9)

It will be interesting to see if phonemic awareness research will be a factor in shaping future definitions of learning disabilities or federal regulations pertaining to identification of learning disabilities.

### Biological Causes of Learning Disabilities

Since the 1960s, most definitions of learning disabilities have made reference to a neurological basis for learning disabilities. However, it was not until the 1980s and especially the 1990s that evidence began to accumulate to support a biological basis for learning disabilities. Researchers have used two different sources of evidence to support the conclusion that learning disabilities may be the result of neurological dysfunction: postmortem studies and neuroimaging studies. Furthermore, evidence has begun to mount that hereditary factors are implicated in many cases of learning disabilities.

*Postmortem studies.* Albert Galaburda and Norman Geschwind and their colleagues (Galaburda & Kemper, 1979; Galaburda, Menard, & Rosen, 1994; Galaburda, Sherman, Rosen, Aboitz, & Geschwind, 1985; Geschwind & Levitsky, 1968; Humphreys, Kaufmann, & Galaburda, 1990) made postmortem comparisons between the brains of people with and without dyslexia. When they first started this research, it was difficult to assess its reliability because the number of cases was so small. By the 1990s, however, they had accumulated data on more than a dozen cases, and their results were demonstrating a consistent pattern. In most brains of the nondyslexic group, the left planum temporale (a section of the left temporal lobe, including a large segment of Wernicke's area) is larger than the planum temporale in the right temporal lobe. The left and right planum temporales in the brains of those with dyslexia, in contrast, are the same size or the planum temporale in the right hemisphere is larger than the one in the left hemisphere.

*Neuroimaging studies.* Using magnetic resonance imaging (MRIs) and computerized axial tomography (CAT) scans, researchers have found the same symmetry or reversed symmetry for the planum temporales of adults with dyslexia (Hynd & Semrud-Clikeman, 1989; Kusch et al., 1993; Larsen, Høien, Lundberg, & Odegaard, 1990). Studies of brain metabolism, using positron emission tomography (PET) scans and fMRIs, have also begun to reveal differences between individuals with and without dyslexia (Flowers, 1993; Flowers, Wood, & Naylor, 1991; Gross-Glenn et al., 1991; Hagman et al., 1992; Shaywitz et al., 1998). Again, the left hemisphere appears to be the locus of the abnormal functioning, with some of the evidence pointing to Wernicke's area.

*Hereditary factors.* The 1990s also witnessed an increase in evidence pointing to the hereditary nature of learning disabilities. Researchers have found that about 40% of first-degree relatives of children with reading disabilities have reading disabilities themselves (Pennington, 1990). An approximately equal degree of familiarity has also been found for speech and language disorders (Beichtman, Hood, & Inglis, 1992; Lewis, 1992) and spelling disorders (Schulte-Körne, Deimel, Müller, Gutenbrunner, & Remschmidt, 1996). Furthermore, studies of heritability, comparing monozygotic versus dizygotic twins, have found a high degree of concordance for reading disabilities (DeFries, Gillis, & Wadsworth, 1993), speech and language disorders (Lewis & Thompson, 1992), and oral reading ability (Reynolds et al., 1996).

### Concern over Identification Procedures

At least two issues related to identification have occupied the learning disabilities literature at the end of the twentieth century. The first pertains to the use of the discrepancy between achievement and intellectual potential; the second is the issue of over-representation of minorities in the learning disabilities category.

*Discrepancy between achievement and intellectual potential.* By the 1990s, the majority of states had adopted a discrepancy between achievement and intellectual potential as part of their identification procedures (Frankenberger & Franzaglio, 1991). However, during this same time period many learning

disabilities researchers began to question seriously the use of discrepancy. These critics have cited at least four reasons for their objections. First, they argue that studies that were instrumental in justifying a discrepancy approach in the first place were flawed. Researchers conducted epidemiological studies on the Isle of Wight in which they used regression scores between reading and performance IQ scores to differentiate students who had specific reading retardation (discrepant readers) from those who had general reading backwardness (nondiscrepant readers) (Rutter & Yule, 1975). Finding a “hump” in the lower end of the distribution of residual reading scores for those with specific reading retardation, some researchers used these data as evidence of the validity of using discrepancy to define students with learning disabilities. Several researchers, however, have leveled criticisms at the Isle of Wight studies, e.g., inability to replicate the results and ceiling effects on the reading test, which could have led to an inflated number of discrepant readers and resulted in the “hump.” (See Vellutino, Scanlon, & Lyon, 2000, for a more in-depth discussion of these criticisms.)

Second, some have cited the Matthew effect (better readers learn more about their world and, therefore, are likely to score higher on IQ tests) as a problem. They have pointed out that the IQ scores of students with reading disabilities may be underestimated (Siegel, 1989).

Third, using a discrepancy approach makes it very difficult to identify children as learning disabled in the early elementary grades. This is particularly problematic because research has generally shown that intervention is more effective the earlier it is implemented (Fletcher et al., 1998)

Fourth, researchers have been unable to discriminate between students with a discrepancy from those with low reading achievement but no discrepancy on measures considered important for reading, e.g., phonological awareness, orthographic coding, short-term memory, word retrieval (Fletcher et al., 1994; Foorman, Francis, Fletcher, & Lynn, 1996; Stanovich & Siegel, 1994). Although low achievers do not differ from those with a discrepancy on these variables, this does not mean that low achievers do not differ from students identified as learning disabled, using broader identification criteria (Fuchs, Mathes, Fuchs, & Lipsey, 1999).

Researchers have just begun to explore alternatives to the discrepancy approach to identification. One alternative would rely on the assessment of phonological processes (Torgesen & Wagner, 1998). Another, referred to as the treatment validity approach, would involve assessment of students’ levels of academic performance and learning rates on curriculum-based measures (Fuchs & Fuchs, 1998).

*Disproportionate representation of minority students.* Since at least the time of Lloyd Dunn’s classic article, “Special Education for the Mildly Retarded: Is Much of It Justifiable?” (Dunn, 1968), there has been concern over identification of children from minority backgrounds in special education. Although most of the concern has been focused on the categories of mental retardation and emotional disturbance, there is also some evidence of disproportionate representation in learning disabilities. For 1998–1999, 4.49% of all students (aged 6 to 21 years) were identified as learning disabled. Following are the percentages for different ethnic groups: White (4.27%), African American (5.57%), Hispanic (4.97%), Asian/Pacific Islander (1.70%), American Indian/Alaska Native (6.29%, U.S. Department of Education, 2000). These figures indicate substantial over-representation of African Americans and, especially, American Indian/Alaska Natives in the learning disabilities category and a very large under-representation of Asian/Pacific-Islanders.

Researchers have not yet been able to disentangle the reasons why disproportionate representation in learning disabilities and other areas of special education exists. Factors that researchers have cited as potential causes are racially biased tests, racially biased professionals, and inadequate community resources, such as health care and educational opportunities (Hallahan & Kauffman, 2000). Most authorities do agree that disproportionate representation is a complex problem, and the federal government has begun to highlight it as a major problem:

The complexity of this issue requires an integrated and multifaceted effort to promote greater educational access and excellence for racial/ethnic minority students that involves policy makers,

educators, researchers, parents, advocates, students, and community representatives. The disproportionate representation of racial/ethnic minority students in special education programs and classes points to the need to:

Make available strong academic programs that foster success for all students in regular and special education;

implement effective and appropriate special education policies and procedures for referral, assessment, eligibility, classification, placement, and re-evaluation;

increase the level of home/school/community involvement in the educational process; and

use diverse community resources to enhance and implement educational programs. (U.S. Department of Education, 1997, p. I-47)

## Debate Over the Continuum of Placements

In the mid-1980s, the Assistant Secretary of Education, Madeleine C. Will, proposed the regular education initiative (REI). The mother of a child with Down syndrome, Will (1986) called for general educators to take more ownership for the education of students who were one or more of the following: economically disadvantaged, bilingual, or disabled. The REI launched a movement toward inclusion of students with disabilities, including those with learning disabilities, that continues to this day. At the same time, it triggered a debate about placement options that also continues to this day.

Views on placement options have ranged from full inclusion<sup>15</sup> to a preservation of the continuum of placements. The following two excerpts illustrate the two different views. The first attacks the concept of the least restrictive environment (LRE):

Three generations of children subject to LRE are enough. Just as some institution managers and their organizations—both overt and covert—seek refuge in the continuum and LRE, regional, intermediate unit, and special school administrators and their organizations will continue to defend the traditional and professionally pliable notion of LRE. The continuum is real and represents the status quo. However, the morass created by it can be avoided in the design and implementation of reformed systems focusing all placement questions on the local school and routinely insisting on the home school as an absolute and universal requirement. In terms of placement, the home-school focus renders LRE irrelevant and the continuum moot. (Laski, 1991, p. 413)

The second responds to full inclusion advocates' frequent use of battle metaphors to defend their position:

For many...[defenders of a continuum of placements] regular education remains a foreign and hostile territory, neglecting many children with disabilities. PL 94-142, with its declaration of a free and appropriate education and its cascade of services and the LRE principle, represented in 1975 the capturing of the beachhead for children with disabilities. It is time to gather our energies and courage; validate comprehensive integration strategies; pressure mainstream administrators and teachers to make greater accommodations; move inland! But as we mount this new offensive, we, like any general worthy of his rank, must make certain that the beachhead remains secure. It's the beachhead, after all, that provides supplies and, in a worst-case scenario, guarantees a safe retreat. The cascade of services is a source of strength and safety net for the children we serve. Let's not lose it. (Fuchs & Fuchs, 1991, pp. 253–254)

In keeping with the REI philosophy, this time period also spawned a concern for students with learning disabilities' access to the general education curriculum, their inclusion in high stakes testing, the use of pre-referral strategies, and the use of cooperative teaching practices. However, not all learning disabilities professionals have been completely sold on the value of these concerns and practices. In particular, some have voiced objections that too much focus on inclusive practices has resulted in students with learning disabilities not receiving enough intensive, specialized instruction:

The reason why children with learning disabilities are not getting enough of the intensive, structured instruction is that many schools, for all intents and purposes, are offering inclusion in

the regular class as the only type of model for our kids. They give lip service to the full continuum of placements, in order to remain legal, but in reality they push an inclusion model over other options: “You have a learning disability, this is what we have for you—full time in a regular class.” This one-size-fits all thinking is reminiscent of what we had prior to PL 94-142: “You have a learning disability; this is what we have for you—a self-contained class.” ...

Recently, the Council for Exceptional Children released a report entitled, “Conditions for Special Education Teaching.” This survey of special education teachers, general education teachers, and special and general education administrators tells an alarming tale. It’s no wonder that special education teachers are leaving the profession in droves. Almost a third of special education teachers spend 20 to 30 percent of their time on paperwork related to identifying students and developing IEPs. And 12% spend more than half their time doing this. This doesn’t even count other types of paperwork, like taking attendance, writing notes to parents, and so forth. Fifty-eight percent report spending 10 to 20% of their time in meetings related to IEPs, and 25% report spending 20 to 30% of their time in such meetings. And this doesn’t count the time required to collaborate with general educators. From the way these data are reported it’s not possible to arrive at a precise measure of how much time is spent in either meetings or paperwork, but a not unreasonable estimate would be that about half the special education teachers report spending about half their time in IEP-related meetings or paperwork.

So where’s the time for instruction? There isn’t any. Thirty-one percent of special education teachers report they spend less than 1 hour per week in individual instruction. Twenty-two percent spend ... 1 to 2 hours per week in individual instruction. And ... 15% spend *zero* time in individual instruction. (Hallahan, 2000)

## Postmodernism and Learning Disabilities

Kauffman (1999) has expressed concern and displeasure about the current status of special education. Specifically he has stated, “I am not very happy with most of what I see in our field today. I think we are in a period of considerable upset and danger, and our future could look rather bleak depending on how we respond to current pressures” (p. 244).

Kauffman’s words of unrest are, in part, due to the spread of postmodernism and its position that special education is fundamentally flawed and needs reconceptualization. The position of postmodernists is in stark contrast to the point of view of Kauffman and others who believe that special education is basically a sound system that needs incremental improvements guided by scientific inquiry. Various terms, such as incremental improvement versus substantial reconceptualization (Andrews et al., 2000), modern versus postmodernism/cultural relativism (Sasso, 2001), modern versus postmodernism/constructivism (Kauffman, 1999), and modern versus postmodernism (Kavale & Forness, 2000), have been used to describe these two camps; however, in this discussion, modern and postmodernism are used. The major tenets and implications of the two positions are apparent when their respective views on the nature of knowledge, disability, special education, and expected outcomes for students with disabilities are examined.

*Nature of knowledge.* The modern position holds that the current state of knowledge is promising and provides a solid basis on which to build. The modern position supports the use of the scientific method of inquiry to increase knowledge and features experimental research designs and quantitative analysis. Postmodernism rejects the modern view of science in favor of alternative ways of knowing. Postmodernism primarily supports a socially constructed view of knowledge in which logical inquiry is a social enterprise. This social negotiation approach to knowing is used to focus on topics such as racism, systems, researchers as change agents, and the redefining of ethical and moral behavior.

Critics of postmodernism (Kauffman, 1999; Kavale & Forness, 2000; Sasso, 2001) maintain that the most questionable tenet of postmodernism is the rejection of science because it is thought of as untrustworthy or evil. The concern emerges because the rejection of science insulates socially constructed knowledge from

compelling criticism and allows points of view to be endorsed that promote agendas that could be scientifically challenged.

The implications of postmodernism concerning the nature of knowledge have much potential to influence the field of learning disabilities in a negative manner. For example, there has been a rapid growth of scientific knowledge about the nature and treatment of learning disabilities during the past decade. If this knowledge were not recognized as valuable, it probably would not be used to improve the identification and treatment of individuals with learning disabilities in our public schools.

*Nature of disability.* The modern position views disability as a phenomenon that is within the individual and is consistent with the medical model view of wellness and illness. The disability is owned by the individual and needs to be treated, accommodated, and/or endured. Postmodernism views disability primarily as a social construction that is based on incorrect immoral assumptions about difference. Although the notion of a disability is not totally rejected, most postmodernists believe that disability exists more in the perceptions of the beholder than in the bodies of the beheld (Andrews et al., 2000). The aim is to change the flawed constructions of disability. Kauffman (1999) maintains this position undermines the concepts of disability. Sasso (2001) provides an interesting perspective on the postmodern view of disability:

Having apparently decided that teaching competency skills to children with disabilities is too difficult, they have decided that instead of changing children with disabilities, they will change everyone else. Thus, their reasoning goes, schools, the community, courts of law, the government, indeed all of society must be made to change to accommodate and accept individuals with disabilities. As with most initial claims of postmodernists, the basic goal of attitude change appears reasonable. When translated to practice, the illogic of these critics becomes apparent. (pp. 188–189)

The postmodernism view of disability has significant implications for individuals with learning disabilities. The social construction of disability risks minimizing or trivializing an individual's disability. One of the most caring acts that educators can do is to apply current and forthcoming research-based assessments and interventions to identify and teach individuals with learning disabilities to read, write, problem solve, socialize, communicate, and be independent. The social construction process must not overlook the biological construction process.

*Nature of special education and outcomes.* The modern view of special education is to use instruction in order to enhance the functioning, knowledge, skills, and socializations of individuals with disabilities. Modernists hope that these cumulative interventions eventually enable individuals with learning disabilities to have successful and rewarding postschool experiences. Although the postmodern view of special education mentions the importance of enhancing performance, the primary focus is on changing social constructions that limit individuals with disabilities. Postmodernists value the outcome of creating a caring adaptable society that treats differences and needs without labels, stigmas, or exclusion (Andrews et al., 2000).

It would seem that modern and postmodern conceptions regarding the nature of special education and related outcomes should naturally blend together. Unfortunately, the strong and radical feelings between these two positions foster extreme viewpoints and minimum common ground. Sasso (2001) points out that the overall purpose of postmodernism is to dismantle special education, to undermine the epistemic authority of the science of disability and valorize "ways of knowing" incompatible with it.

The intensity of this special education divide is captured in Sowell's (1995) words:

Those who accept this vision [postmodernism] are deemed to be not merely factually correct but morally on a higher plane. Put differently, those who disagree with the prevailing vision are seen as being not merely in error, but in sin. For those who have this vision of the world, the anointed [postmodernists] and the benighted [modernists] do not argue on the same moral plane or play by

the same cold rules of logic and evidence. The benighted are to be made “aware,” to have their “consciousness raised,” and the wistful hope is held out that they will “grow.” Should the benighted prove recalcitrant, however, then their “mean-spiritedness” must be fought and the “real reasons” behind their arguments and actions exposed. (pp. 2–3)

If individuals with learning disabilities are to receive the very best education possible and be accepted by a caring and loving community, educators must join to stop yet another “education war” that truly deters special education from being the helping profession it was created to be.

## REFERENCES

- Abt Associates. (1976). *Education as experimentation: A planned variation model*, Vol. 3A. Cambridge, MA: Author.
- Abt Associates. (1977). *Education as experimentation: A planned variation model*, Vol. 4. Cambridge, MA: Author.
- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Andrews, J. E., Carnine, D. W., Coutinho, M. J., Edgar, E. B., Forness, S. R., Fuchs, L. S., et al. (2000). Bridging the special education divide. *Remedial and Special Education*, 21, 258–260, 267.
- Anderson, P. L., & Meier-Hedde, R. (2001). Early case reports of dyslexia in the United States and Europe. *Journal of Learning Disabilities*, 34, 9–21.
- Anonymous. (1966). *Minimal brain dysfunction in children: Terminology and identification*. Washington, DC: U.S. Department of Health, Education, and Welfare.
- Association for Children with Learning Disabilities. (1986). ACLD definition: Specific learning disabilities. *ACLD Newsbriefs*, 15–16.
- Barsch, R. H. (1967). *Achieving perceptual-motor efficiency: A space-oriented approach to learning*. Seattle, WA: Special Child Publications.
- Bateman, B. (1965). An educational view of a diagnostic approach to learning disorders. In J. Hellmuth (Ed.), *Learning disorders: Vol. 1* (pp. 219–239). Seattle, WA: Special Child Publications.
- Beichtman, J. H., Hood, J., & Inglis, A. (1992). Familial transmission of speech and language impairment: A preliminary investigation. *Canadian Journal of Psychiatry*, 37(3), 151–156.
- Broadbent, W. H. (1872). On the cerebral mechanism of speech and thought. *Proceedings of the Royal Medical and Chirurgical Society of London* (pp. 25–29). London: Anonymous.
- Brown, G. S., & Campbell, D. P. (1948). *Principles of servomechanisms*. New York: John Wiley.
- Bryan, T., Pearl, R., Donahue, M., Bryan, J., & Pflaum, S. (1983). The Chicago Institute for the Study of Learning Disabilities. *Exceptional Education Quarterly*, 4(1), 1–22.
- Bryant, N. D. *Recommendations for programmatic research*. (1972). Washington, DC: U.S. Office of Education.
- Bryant, N. D., Kass, C. E., & Wiederholt, J. L. (1972). *Final Report: Leadership Training Institute in Learning Disabilities*. Washington, DC: U.S. Office of Education.
- Bush, W. J., & Giles, M. T. (1969). *Aids to psycholinguistic teaching*. Columbus, OH: Merrill.
- Clements, S. D. (1966). Minimal brain dysfunction in children: Terminology and identification: Phase one of a three-phase project. *NINDS Monographs*, 9, Public Health Service Bulletin No. 1415. Washington: DC: U.S. Department of Health, Education, and Welfare.
- Cohen, S. A. (1969). Studies in visual perception and reading in disadvantaged children. *Journal of Learning Disabilities*, 2, 498–507.
- Cohen, S. A. (1970). Cause versus treatment in reading achievement. *Journal of Learning Disabilities*, 3, 163–166.
- Connor, F. P. (1983). Improving school instruction for learning disabled children: The Teachers

- College Institute. *Exceptional Education Quarterly*, 4(1), 23–44.
- Cruickshank, W. M. (1976). William M. Cruickshank. In J. M. Kauffman & D. P. Hallahan (Eds.), *Teaching children with learning disabilities: Personal perspectives* (pp. 94–127). Columbus, OH: Charles E. Merrill.
- Cruickshank, W. M., Bentzen, F. A., Ratzeburg, F. H., & Tannhauser, M. T. (1961). *A teaching method of brain-injured and hyperactive children*. Syracuse, NY: Syracuse University Press.
- Cruickshank, W. M., Bice, H. V., & Wallen, N. E. (1957). *Perception and cerebral palsy*. Syracuse, NY: Syracuse University Press.
- Cruickshank, W. M., Bice, H. V., Wallen, N. E., & Lynch, K. S. (1965). *Perception and cerebral palsy* (2nd ed.). Syracuse, NY: Syracuse University Press.
- Cruickshank, W. M., & Dolphin, J. E. (1951). The educational implications of psychological studies of cerebral-palsied children. *Exceptional Children*, 18, 1–8, 32.
- DeFries, J. C., Gillis, J. J., & Wadsworth, S. J. (1993). Genes and genders: A twin study of reading disability. In A. M. Galaburda (Ed.), *Dyslexia and development: Neurological aspects of extraordinary brains* (pp. 187–204). Cambridge, MA: Harvard University Press.
- Delacato, C. H. (1959). *The treatment and prevention of reading problems: The neurological approach*. Springfield, IL: Charles C. Thomas.
- Delacato, C. H. (1963). *The diagnosis and treatment of speech and reading problems*. Springfield, IL: Charles C. Thomas.
- Delacato, C. H. (1966). *Neurological organization and reading*. Springfield, IL: Charles C. Thomas.
- Deno, S. L. (1987). Curriculum-based measurement. *Teaching Exceptional Children*, 20(1), 41–42.
- Deshler, D. D., Ellis, E. S., & Lenz, B. K. (1996). *Teaching adolescents with learning disabilities: Strategies and methods* (2nd ed.). Denver: Love.
- Dolphin, J. E. (1950). A study of certain aspects of the psychopathology of cerebral palsy children. Unpublished doctoral dissertation, Syracuse University.
- Dolphin, J. E., & Cruickshank, W. M. (1951a). Pathology of concept formation in children with cerebral palsy. *American Journal of Mental Deficiency*, 56, 386–392.
- Dolphin, J. E., & Cruickshank, W. M. (1951b). Tactual motor perception of children with cerebral palsy. *Journal of Personality*, 20, 466–471.
- Dolphin, J. E., & Cruickshank, W. M. (1951c). The figure-background relationship in children with cerebral palsy. *Journal of Clinical Psychology*, 7, 228–231.
- Dolphin, J. E., & Cruickshank, W. M. (1951d). Visuo-motor perception of children with cerebral palsy. *Quarterly Journal of Child Behavior*, 3, 198–209.
- Dunn, L. M. (1968). Special education for the mildly retarded—Is much of it justifiable? *Exceptional Children*, 35, 5–22.
- Engelmann, S. (1967). Relationship between psychological theories and the act of teaching. *Journal of School Psychology*, 5, 92–100.
- Engelmann, S., Becker, W. C., Hanner, S., & Johnson, G. (1978). *Corrective reading program: Series guide*. Chicago: Science Research Associates.
- Engelmann, S., Becker, W. C., Hanner, S., & Johnson, G. (1988). *Corrective reading program: Series guide* (Rev. ed.). Chicago: Science Research Associates.
- Engelmann, S., & Osborn, J. (1977). *DISTAR language*. Chicago: Science Research Associates.
- Fernald, G. M. (1943). *Remedial techniques in basic school subjects*. New York: McGraw-Hill Book Company.
- Fernald, G. M., & Keller, H. (1921). The effect of kinaesthetic factors in the development of word recognition in the case of non-readers. *Journal of Educational Research*, 4, 355–377.
- Fletcher, J. M., Francis, D. J., Shaywitz, S. E., Lyon, G. R., Foorman, B. R., Stuebing, K. K., & Shaywitz, B. A. (1998). Intelligent testing and the discrepancy model for children with learning

- disabilities. *Learning Disabilities Research & Practice*, *13*, 186–203.
- Fletcher, J. M., Shaywitz, S. E., Shankweiler, D. P., Katz, L., Liberman, I. Y., Stuebing, K. K., et al. (1994). Cognitive profiles of reading disability: Comparisons of discrepancy and low achievement definitions. *Journal of Educational Psychology*, *86*, 6–23.
- Flowers, D. L. (1993). Brain basis for dyslexia: A summary of work in progress. *Journal of Learning Disabilities*, *26*, 575–582.
- Flowers, D. L., Wood, F. B., & Naylor, C. E. (1991). Regional cerebral blood flow correlates of language processes in reading disability. *Archives of Neurology*, *48*, 637–643.
- Foorman, B. R., Francis, D. J., Fletcher, J. M., & Lynn, A. (1996). Relation of phonological and orthographic processing to early reading: Comparing two approaches to regression-based, reading-level-match designs. *Journal of Educational Psychology*, *88*, 639–652.
- Forness, S. R., & Kavale, K. A. (1996). Treating social skill deficits in children with learning disabilities: A meta-analysis of the research. *Learning Disability Quarterly*, *19*, 2–13.
- Frankenberger, W., & Franzaglio, K. (1991). A review of states' criteria for identifying children with learning disabilities. *Journal of Learning Disabilities*, *24*, 495–500.
- Frostig, M., & Horne, D. (1964). *The Frostig program for the development of visual perception: Teacher's guide*. Chicago: Follett.
- Frostig, M., Lefever, D. W., & Whittlesey, J. R. B. (1964). *The Marianne Frostig Developmental Test of Visual Perception*. Palo Alto, CA: Consulting Psychology Press.
- Fuchs, D., & Fuchs, L. S. (1991). Framing the REI debate: Abolitionists versus conservationists. In J. W. Lloyd, N. N. Singh, & A. C. Repp (Eds.), *The regular education initiative: Alternative perspectives on concepts, issues, and models* (pp. 241–255). Sycamore, IL: Sycamore Publishing.
- Fuchs, D., Mathes, P. G., Fuchs, L. S., & Lipsey, M. W. (1999). *Is LD just a fancy term for underachievement? A meta-analysis of reading differences between underachievers with and without the label*. Unpublished manuscript.
- Fuchs, L. S. (1986). Monitoring progress among mildly handicapped pupils: Review of current practice and research. *Remedial and Special Education*, *7*(5), 5–12.
- Fuchs, L. S., & Fuchs, D. (1986). Effects of systematic formative evaluation: A meta-analysis. *Exceptional Children*, *53*, 199–208.
- Fuchs, L. S., & Fuchs, D. (1998). Treatment validity: A unifying concept for reconceptualizing the identification of learning disabilities. *Learning Disabilities Research & Practice*, *13*, 204–219.
- Galaburda, A. M., & Kemper, T. L. (1979). Cytoarchitectonic abnormalities in developmental dyslexia: A case study. *Annals of Neurology*, *6*, 94–100.
- Galaburda, A. M., Menard, M. T., & Rosen, G. D. (1994). Evidence for aberrant auditory anatomy in developmental dyslexia. *Proceedings of the National Academy of Science USA*, *91*, 8010–8013.
- Galaburda, A. M., Sherman, G. F., Rosen, G. D., Aboitz, F., & Geschwind, N. (1985). Developmental dyslexia: Four consecutive patients with cortical anomalies. *Annals of Neurology*, *18*, 222–233.
- Geschwind, N., & Levitsky, W. (1968). Human brain: Left-right asymmetries in temporal speech. *Science*, *161*, 186–187.
- Gesell, A. F., Ilg, G., Bullis, G., Getman, G. N., & Ilg, F. (1949). *Vision: Its development in infant and child*. New York: Hoeber.
- Getman, G. N., Kane, E. R., Halgren, M. R., & McKee, G. W. (1964). *The physiology of readiness: An action program for the development of perception for children*. Minneapolis: Programs to Accelerate School Success.
- Getman, G. N., & Kephart, N. C. (1956). *The perceptual development of retarded children*. Unpublished manuscript, Purdue University.
- Gibson, J. J., & Gibson, E. J. (1955). Perceptual learning: Differentiation or enrichment? *Psychological Review*, *62*, 33–40.

- Gillingham, A., & Stillman, B. W. (1936). *Remedial work for reading, spelling, and penmanship*. New York: Sachett & Wilhelms.
- Goldstein, K. (1936). The modification of behavior consequent to cerebral lesions. *Psychiatric Quarterly*, *10*, 586–610.
- Goldstein, K. (1939). *The organism*. New York: American Book.
- Gorton, C. E. (1972). The effects of various classroom environments on performance of a mental task by mentally retarded children and normal children. *Education and Training of the Mentally Retarded*, *7*, 32–38.
- Gresham, F. M. (1988). Social competence and motivational characteristics of learning disabled students. In M. Wang, M. Reynolds, & H. Walberg (Eds.), *The handbook of special education: Research and practice* (pp. 283–302). Oxford, England: Pergamon Press.
- Grodzinsky, Y. (in press). The neurology of syntax. *Behavioral and Brain Sciences*.
- Gross-Glenn, K., Duara, R., Barker, W. W., Loewenstein, D., Chang, J., Yoshii, F., et al. (1991). Positron emission tomographic studies during serial word-reading by normal and dyslexic adults. *Journal of Clinical and Experimental Neuropsychology*, *13*, 531–544.
- Hagman, J. O., Wood, F., Buchsbaum, M. S., Tallal, P., Flowers, L., & Katz, W. (1992). Cerebral brain metabolism in adult dyslexic subjects assessed with positron emission tomography during performance of an auditory task. *Archives of Neurology*, *49*, 734–739.
- Hallahan, D. P. (1992). Some thoughts on why the prevalence of learning disabilities has increased. *Journal of Learning Disabilities*, *25*, 523–528.
- Hallahan, D. P. (2000). *William M. Cruickshank: If He Were Alive Today*. Washington, DC: International Dyslexia Association Annual Conference.
- Hallahan, D. P., & Cruickshank, W. M. (1973). *Psychoeducational foundations of learning disabilities*. Englewood Cliffs, NJ: Prentice-Hall.
- Hallahan, D. P., Hall, R. J., Ianna, S. O., Kneidler, R. D., Lloyd, J. W., Loper, A. B., et al. (1983). Summary of research findings at the University of Virginia Learning Disabilities Research Institute. *Exceptional Education Quarterly*, *4*(1), 95–114.
- Hallahan, D. P., & Kauffman, J. M. (1976). *Introduction to learning disabilities: A psycho-behavioral approach*. Englewood Cliffs, NJ: Prentice-Hall.
- Hallahan, D. P., & Kauffman, J. M. (2000). *Exceptional learners: Introduction to special education* (8th ed.). Boston: Allyn & Bacon.
- Hammill, D. D., & Larsen, S. C. (1974). The effectiveness of psycholinguistic training. *Exceptional Children*, *41*, 514.
- Hammill, D. D., Leigh, J. E., McNutt, G., & Larsen, S. C. (1981). A new definition of learning disabilities. *Learning Disability Quarterly*, *4*, 336–342.
- Hammill, D. D., Mather, N., & Roberts, R. (2001). *Illinois Test of Psycholinguistic Abilities (ITPA-3)* (3rd ed.). Austin, TX: Pro-Ed.
- Haring, N. G., & Bateman, B. (1969). Introduction. In N. G. Haring (Ed.), *Minimal brain dysfunction in children: Educational, medical, and health related services*. (pp. 1–4). Washington, DC: U.S. Department of Health, Education, and Welfare.
- Harlow, H. F. (1951). Learning theories. In W. Dennis (Ed.), *Current trends in psychological theory*. Pittsburgh: University of Pittsburgh Press.
- Head, H. (1926). *Aphasia and kindred disorders of speech*. London: Cambridge University Press.
- Hegge, T. G., Kirk, S. A., & Kirk, W. D. (1936). *Remedial reading drills*. Ann Arbor, MI: George Wahr.
- Hinshelwood, J. (1895). Word-blindness and visual memory. *Lancet*, *2*, 1564–1570.
- Hinshelwood, J. (1917). *Congenital word-blindness*. London: H. K. Lewis & Co. LTD.
- Humphreys, P., Kaufmann, W. E., & Galaburda, A. M. (1990). Developmental dyslexia in women:

- Neuropathological findings in three patients. *Annals of Neurology*, 28, 727–738.
- Hynd, G. W., & Semrud-Clikeman, M. (1989). Dyslexia and brain morphology. *Psychological Bulletin*, 106, 447–482.
- Individuals with Disabilities Education Act Amendments (IDEA) of 1997*. (1997). Public Law 105-17.
- Interagency Committee on Learning Disabilities. (1987). *Learning disabilities: A report to Congress*. Bethesda, MD: National Institutes of Health.
- Jenkins, J. R., Gorrafa, S., & Griffiths, S. (1972). Another look at isolation effects. *American Journal of Mental Deficiency*, 76, 591–593.
- Johnson, D. J., & Myklebust, H. R. (1967). *Learning disabilities: Educational principles and practices*. New York: Grune & Stratton.
- Karnes, M. B. (1968). *Activities for developing psycholinguistic skills with preschool culturally disadvantaged children*. Washington, DC: Council for Exceptional Children.
- Kauffman, J. M. (1999). Commentary: Today's special education and its message for tomorrow. *The Journal of Special Education*, 32, 244–254.
- Kavale, K. A., & Forness, S. R. (2000). History, rhetoric, and reality: Analysis of the inclusion debate. *Remedial and Special Education*, 21, 279–296.
- Keogh, B. K. (1983). A lesson from Gestalt Psychology. *Exceptional Education Quarterly*, 4(1), 115–127.
- Kephart, N. C. (1960). *Slow learner in the classroom*. Columbus, OH: Charles E. Merrill.
- Kephart, N. C. (1971). *Slow learner in the classroom* (2nd ed.). Columbus, OH: Charles E. Merrill.
- Kephart, N. C., & Strauss, A. A. (1940). A clinical factor influencing variations in IQ. *American Journal of Orthopsychiatry*, 10, 342–350.
- Kerr, J. (1897). School hygiene, in its mental, moral, and physical aspects. *Journal of the Royal Statistical Society*, 60, 613–680.
- Kirk, S. A. (1933). The influence of manual tracing on the learning of simple words in the case of subnormal boys. *Journal of Educational Psychology*, 24, 525–535.
- Kirk, S. A. (1935). Hemispheric cerebral dominance and hemispheric equipotentiality. In Anonymous, *Comparative Psychology Monographs*. Baltimore: Johns Hopkins Press.
- Kirk, S. A. (1936). Extrastriate functions in the discrimination of complex visual patterns. *Journal of Comparative Psychology*, 21, 145–159.
- Kirk, S. A. (1940). *Teaching reading to slow learning children*. New York: Houghton Mifflin.
- Kirk, S. A. (1958). *Early education of the mentally retarded: An experimental study*. Urbana, IL: University of Illinois Press.
- Kirk, S. A. (1962). *Educating exceptional children*. Boston: Houghton Mifflin.
- Kirk, S. A. (1963). Behavioral diagnosis and remediation of learning disabilities. In Anonymous, *Proceedings of the conference on exploration into problems of the perceptually handicapped child*. Chicago: Perceptually Handicapped Children.
- Kirk, S. A. (1970). *Lecture in Final Report of Institute for Leadership Personnel in Learning Disabilities*. University of Arizona: Anonymous.
- Kirk, S. A. (1976). Samuel A. Kirk. In J. M. Kauffman & D. P. Hallahan (Eds.), *Teaching children with learning disabilities: Personal perspectives* (pp. 239–269). Columbus, OH: Charles E. Merrill.
- Kirk, S. A., & Kirk, W. D. (1971). *Psycholinguistic learning disabilities: Diagnosis and remediation*. Urbana, IL: University of Illinois Press.
- Kirk, S. A., McCarthy, J. J., & Kirk, W. D. (1961). *Illinois Test of Psycholinguistic Abilities* (Experimental ed.). Urbana, IL: University of Illinois Press.
- Kirk, S. A., McCarthy, J. J., & Kirk, W. D. (1968). *Illinois Test of Psycholinguistic Abilities* (Rev. ed.). Urbana, IL: University of Illinois Press.

- Kushch, A., Gross-Glenn, K., Jallad, B., Lubs, H., Rabin, M., Feldman, E., et al. (1993). Temporal lobe surface area measurements on MRI in normal and dyslexic readers. *Neuropsychologia*, *31*, 811–821.
- Kussmaul, A. (1877). Word deafness and word blindness. In H. von Ziemssen & J. A. T. McCreery (Eds.), *Cyclopaedia of the practice of medicine*. (pp. 770–778). New York: William Wood.
- Larsen, E. J. (1931). A neurologic-etiological study on 1000 mental defectives. *Acta Psychiatrica et Neurologica*, *6*, 37–54.
- Larsen, J. P., Høien, T., Lundberg, I., & Odegaard, H. (1990). MRI evaluation of the symmetry of the planum temporale in adolescents with dyslexia. *Brain and Language*, *39*, 289–301.
- Laski, F. J. (1991). Achieving integration during the second revolution. In L. H. Meyer, C. A. Peck, & L. Brown (Eds.), *Critical issues in the lives of people with severe disabilities* (pp. 409–421). Baltimore, MD: Paul H. Brookes.
- Lerner, J. W. (2000). *Learning disabilities: Theories, diagnosis, and teaching strategies* (8th ed.). Boston: Houghton Mifflin.
- Lewis, B. A. (1992). Pedigree analysis of children with phonology disorders. *Journal of Learning Disabilities*, *25*, 586–597.
- Lewis, B. A., & Thompson, L. A. (1992). A study of developmental speech and language disorders in twins. *Journal of Speech and Hearing Research*, *35*, 1086–1094.
- Lyon, G. R. (1995a). Toward a definition of dyslexia. *Annals of Dyslexia*, *45*, 3–27.
- Lyon, G. R. (1995b). Research initiatives in learning disabilities: Contributions from scientists supported by the National Institute of Child Health and Human Development. *Journal of Child Neurology*, *10*(Suppl. 1), 120–126.
- Lyon, G. R. (1998). *Overview of reading and literacy initiatives (Report to Committee on Labor and Human Resources, U.S. Senate)*. Bethesda, MD: National Institute of Child Health and Human Development, National Institutes of Health.
- Mann, L. (1971). Psychometric phrenology and the new faculty psychology. *The Journal of Special Education*, *5*, 3–14.
- Martin, E. W. (1987). Developmental variation and dysfunction: Observations on labeling, public policy, and individualization of instruction. In M. D. Levine & P. Satz (Eds.), *Middle childhood: Development and dysfunction* (pp. 435–445). Baltimore: University Park Press.
- McKinney, J. D. (1983). Contributions of the institutes for research on learning disabilities. *Exceptional Education Quarterly*, *4*(1), 129–144.
- Mercer, C. D. (1997). *Students with learning disabilities* (5th ed.). Upper Saddle River, NJ: Merrill.
- Mercer, C. D., Forgnone, C., & Wolking, W. D. (1976). Definitions of learning disabilities used in the United States. *Journal of Learning Disabilities*, *9*, 376–386.
- Minskoff, E. H., Wiseman, D. E., & Minskoff, J. G. (1974). *The MWM Program for Developing Language Abilities*. Ridgefield, NJ: Educational Performance Associates.
- Monroe, M. (1928). Methods for diagnosis and treatment of cases of reading disability. *Genetic Psychology Monographs*, *4*, 341–456.
- Monroe, M. (1932). *Children who cannot read*. Chicago: The University of Chicago Press.
- Morgan, W. P. (1896). A case of congenital word blindness. *The British Medical Journal*, *2*, 1378.
- National Joint Committee on Learning Disabilities. Anonymous. (1988). *Letter to NJCLD Member Organizations*.
- National Reading Panel. (April, 2000). *Report of the National Reading Panel: Teaching children to read (NIH Publication No. 00-4654)*. Bethesda, MD: National Institute of Child Health and Human Development, National Institutes of Health.
- Orton, S. T. (1925). “Word-blindness” in school children. *Archives of Neurology and Psychiatry*, *14*, 581–615.

- Orton, S. T. (1937). *Reading, writing, and speech problems in children*. New York: W. W. Norton & Company, Inc.
- Orton, S. T. (1939). A neurological explanation of the reading disability. *The Educational Record*, 20(Supp. No. 12), 58–68.
- Osgood, C. E. (1957). A behavioristic analysis of perception and language as cognitive phenomena. In J. S. Bruner (Ed.), *Contemporary approaches to cognition* (pp. 75–117). Cambridge, MA: Harvard University Press.
- Pennington, B. F. (1990). Annotation: The genetics of dyslexia. *Journal of Child Psychology and Child Psychiatry*, 31 (2), 193–201.
- Pinel, J. P. J. (1997). *Biopsychology* (3rd ed.). Boston: Allyn & Bacon.
- Reynolds, C. A., Hewitt, J. K., Erickson, M. T., Silberg, J. L., Rutter, M., Simonoff, E., et al. (1996). The genetics of children's oral reading performance. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, 37, 425–434.
- Robbins, M., & Glass, G. V. (1969). The Doman-Delacato rationale: A critical analysis. In J. Hellmuth (Ed.), *Educational therapy: Vol. II*. Seattle: Special Child Publications.
- Rost, K. J., & Charles, D. C. (1967). Academic achievement of brain injured and hyperactive children in isolation. *Exceptional Children*, 34, 125–126.
- Rutter, M., & Yule, W. (1975). The concept of specific reading retardation. *Journal of Child Psychology and Psychiatry*, 16, 181–197.
- Sarason, S. B. (1949). *Psychological problems in mental deficiency*. New York: Harper.
- Sasso, G. M. (2001). The retreat from inquiry and knowledge in special education. *The Journal of Special Education*, 34, 178–193.
- Schulte-Korne, G., Deimel, W., Muller, K., Gutenbrunner, C., & Remschmidt, H. (1996). Familial aggregation of spelling disability. *Journal of Child Psychology and Psychiatry*, 37, 817–822.
- Schumaker, J. B., Deshler, D. D., Alley, G. R., & Warner, M. M. (1983). Toward the development of an intervention model for learning disabled adolescents: The University of Kansas Institute. *Exceptional Education Quarterly*, 4(1), 45–74.
- Shaywitz, S. E., Shaywitz, B. A., Pugh, K. R., Fulbright, R. K., Constable, R. T., Mencl, W. E., et al. (1998). Functional disruption in the organization of the brain for reading in dyslexia. *Neurobiology*, 95, 2636–2641.
- Shores, R. E., & Haubrich, P. A. (1969). Effect of cubicles in educating emotionally disturbed children. *Exceptional Children*, 36, 21–26.
- Siegel, L. S. (1989). IQ is irrelevant to the definition of learning disabilities. *Journal of Learning Disabilities*, 22, 469–486.
- Skeels, H. M. (1966). Adult status of children with contrasting early life experiences. *Monographs of the Society for Research in Child Development*, 31(Serial No. 105).
- Skeels, H. M., & Dye, H. B. (1939). A study of the effects of differential stimulation on mentally retarded children. *Proceedings: American Association on Mental Deficiency*, 44, 114–136.
- Slater, B. R. (1968). Effects of noise on pupil performance. *Journal of Educational Psychology*, 59, 239–243.
- Sommerville, J. W., Warnberg, L. S., & Bost, D. E. (1973). Effects of cubicles versus increased stimulation on task performance by first-grade males perceived as distractible and nondistractible. *The Journal of Special Education*, 7, 169–185.
- Sowell, T. (1995). *The vision of the anointed: Self-congratulation as a basis for social policy*. New York: Basic Books.
- Stanovich, K. E., & Siegel, L. S. (1994). Phenotypic performance profile of children with reading disabilities: A regression-based test of the phonological-core variable-difference model. *Journal of Educational Psychology*, 86, 24–53.

- Strauss, A. A. (1943). Diagnosis and education of the cripple-brained, deficient child. *Journal of Exceptional Children*, 9, 163–168, 183.
- Strauss, A. A., & Kephart, N. C. (1939). *Rate of mental growth in a constant environment among higher grade moron and borderline children*. Anonymous.
- Strauss, A. A., & Kephart, N. C. (1955). *Psychopathology and education of the brain-injured child, Vol. II: Progress in theory and clinic*. New York: Grune and Stratton.
- Strauss, A. A., & Lehtinen, L. E. (1947). *Psychopathology and education of the brain-injured child*. New York: Grune and Stratton.
- Strauss, A. A., & Werner, H. (1942). Disorders of conceptual thinking in the brain-injured child. *Journal of Nervous and Mental Disease*, 96, 153–172.
- Tindal, G. A., & Marston, D. B. (1990). *Classroom-based assessment: Evaluating instructional outcomes*. Upper Saddle River, NJ: Merrill/Prentice Hall.
- Torgesen, J. K., & Wagner, R. K. (1998). Alternative diagnostic approaches for specific developmental reading disabilities. *Learning Disabilities Research & Practice*, 13, 220–232.
- U.S. Department of Education. (1997). *Nineteenth annual report to Congress on the implementation of the Individuals with Disabilities Education Act*. Washington, DC: Author.
- U.S. Department of Education. (2000). *Twenty-second annual report to Congress on the implementation of the Individuals with Disabilities Education Act*. Washington, DC: Author.
- U.S. Office of Education. (1968). *First annual report of National Advisory Committee on Handicapped Children*. Washington, DC: U.S. Department of Health, Education, and Welfare.
- U.S. Office of Education. (1976). Proposed rulemaking. *Federal Register*, 41(230), 52404–52407.
- U.S. Office of Education. (1977). Assistance to states for education of handicapped children: Procedures for evaluating specific learning disabilities. *Federal Register*, 42(250), 65082–65085.
- Vaughn, S., McIntosh, R., & Spencer-Rowe, J. (1991). Peer rejection is a stubborn thing: Increasing peer acceptance of rejected students with learning disabilities. *Learning Disabilities Research & Practice*, 6, 83–88.
- Vaughn, S., & Sinugab, J. (1998). Social competence of students with learning disabilities: Interventions and issues. In B. Y. L. Wong (Ed.), *Learning about learning disabilities* (pp. 453–487). San Diego, CA: Academic Press.
- Vellutino, F. R., Scanlon, D. M., & Lyon, G. R. (2000). Differentiating between difficult-to-remediate and readily remediated poor readers: More evidence against the IQ-achievement discrepancy definition of reading disability. *Journal of Learning Disabilities*, 33, 223–238.
- Wang, M. C., Haertel, G. D., & Walberg, H. J. (1993/1994). What helps students learn? *Educational Leadership*, 51(4), 74–79.
- Werner, H. (1948). *Comparative psychology of mental development*. New York: International Universities Press.
- Werner, H. (1957). The concept of development from a comparative and organismic point of view. In D. B. Harris (Ed.), *The concept of development* (pp. 125–148). Minneapolis: University of Minnesota Press.
- Werner, H., & Strauss, A. A. (1939). Types of visuo-motor activity in their relation to low and high performance ages. *Proceedings of the American Association on Mental Deficiency*, 44, 163–168.
- Werner, H., & Strauss, A. A. (1940). Causal factors in low performance. *American Journal of Mental Deficiency*, 45, 213–218.
- Werner, H., & Strauss, A. A. (1941). Pathology of figure-background relation in the child. *Journal of Abnormal and Social Psychology*, 36, 236–248.
- Wernicke, C. (1874). *Der aphasische symptomkomplex*. Breslau, Poland: Cohn & Weigert.
- Wiederholt, J. L. (1974). Historical perspectives on the education of the learning disabled. In L. Mann & D. Sabatino (Eds.), *The second review of special education* (pp. 103–152). Philadelphia: JSE Press.

Will, M. C. (1986). Educating children with learning problems: A shared responsibility. *Exceptional Children, 52*, 411–415.

Ysseldyke, J. E., Algozzine, B., Shinn, M. R., & McGue, M. (1982). Similarities and differences between low achievers and students classified as learning disabled. *The Journal of Special Education, 16*, 73–85.

Ysseldyke, J. E., & Salvia, J. A. (1974). Diagnostic prescriptive teaching: Two models. *Exceptional Children, 41*, 181–186.

Ysseldyke, J. E., Thurlow, M., Graden, J., Wesson, C., Algozzine, B., & Deno, S. L. (1983). Generalizations from five years of research on assessment and decision making: The University of Minnesota Institute. *Exceptional Education Quarterly, 4*(1), 75–93.

## ENDNOTES

<sup>1</sup> In this chronicle of the field of learning disabilities, we have drawn upon original sources as well as other prior histories of the field: Hallahan & Cruickshank, 1973; Lerner, 2000; Mercer, 1997; Wiederholt, 1974. The writing of any history, especially when it is restricted to a certain page-length, reflects the particular point of view, or bias, of the author(s). Therefore, we encourage the reader to consult these other histories to supplement the information in the present paper.

<sup>2</sup> Actually, in 1836, a little-known country doctor named Dax presented a paper to a medical society in France, in which he noted that over the course of his career he had seen about 40 cases of brain-injured patients with speech problems, and none of them had damage solely in the right hemisphere. “His report aroused little interest, and Dax died the following year unaware that he had anticipated one of today’s most important areas of neuropsychological research” (Pinel, 1997, p. 412).

<sup>3</sup> Anderson and Meier-Hedde (2001), in an excellent summary of several early case studies of dyslexia, have questioned Morgan’s legitimacy as the first to report on word-blindness in children. They note that James Kerr, Medical Superintendent to the Bradford School Board, delivered a presentation 6 months prior to Morgan’s publication in which he reported on a child with word-blindness. However, when Kerr’s essay was published in 1897, the reference to the boy with word-blindness was terse. He listed several cases of various kinds, including a “boy with word blindness, who can spell the separate letters, is a trouble...” (Kerr, 1897, p. 668). In any case, it is fair to say that Morgan was probably the first to *publish* on word-blindness in children.

<sup>4</sup> As we discuss later, the need for intensive instruction has re-emerged at the end of the 20th century as a theme among some learning disabilities researchers.

<sup>5</sup> Newell Kephart later became a major historical figure in the learning disabilities field in his own right, with his advocacy for perceptual-motor training for children with learning disabilities. We discuss his work in a later section.

<sup>6</sup> Although recommending a general focus on perceptual training, Strauss and Lehtinen did not provide many specific perceptual training recommendations. For example, their discussion of perceptual training was nowhere near as detailed as those of Newell Kephart, Marianne Frostig, and Gerald Getman, whom we discuss later. Furthermore, although Strauss and Lehtinen did make some mention of the value of phonics instruction, they primarily discussed it in the context of auditory perceptual problems and offered few suggestions for phonics instruction.

<sup>7</sup> In the 1960s and 1970s there were several other studies that assessed Strauss and Lehtinen’s and Cruickshank’s recommendations, focusing specifically on the use of reduced environmental stimulation, primarily through the use of cubicles (Gorton, 1972; Jenkins, Gorrafa, & Griffiths, 1972; Rost & Charles, 1967; Shores & Haubrich, 1969; Slater, 1968; Sommerville, Warnberg, & Bost, 1973). In general, these studies showed improvements in attending skills but no improvements in academic achievement.

<sup>8</sup> Bureau of Education for the Handicapped, U.S. Office of Education, Department of Health, Education, and Welfare; Neurological and Sensory Disease Control Program, Department of Health, Education, and Welfare; National Institute of Neurological Diseases and Stroke

<sup>9</sup> Kirk (1976) stated that this study brought about renewed interest in Howard Skeels’ (Skeels & Dye, 1939) original study, in which institutionalized young children with mental retardation were provided stimulation by institutionalized teenage girls with mental retardation. Encouraged to do a followup, Skeels (1966) found evidence that the effects of the program lasted into adulthood. Kirk also stated that the Skeels study and his served to help convince Congress years later to fund Head Start and preschool programs for children with disabilities.

<sup>10</sup> Recently, the *ITPA* has been revised (Hammill, Mather, & Roberts, 2001). Ironically, the senior author of the *ITPA-3*, Donald Hammill, was one of the strongest critics of the original *ITPA*. The *ITPA-3* focuses more exclusively on language and does not include subtests devoted to visual perception.

<sup>11</sup> At the invitation of Kephart, these programs were moved in 1956 from Minnesota, where Getman lived, to the Adult Education Department of Purdue University, with Kephart serving as the faculty sponsor (Hallahan & Cruickshank, 1973). Collaboration with Kephart also resulted in an unpublished monograph at the end of the summer in 1956, *The Perceptual Development of Retarded Children* (Getman & Kephart, 1956). Kephart and Getman also organized a camp for children with brain injury and their parents during the summers of 1957 and 1958. This close relationship between Getman and Kephart is evident in the similarity between their 1956 monograph and Kephart's *Slow Learner in the Classroom* (1960).

<sup>12</sup> Barsch, like Kephart, also collaborated with Getman. Together, they established a summer camp for children and parents at Stevens Point, Wisconsin, in 1960. Barsch also collaborated with Alfred Strauss when the latter was the director of the Cove Schools in Racine, Wisconsin (Hallahan & Cruickshank, 1973).

<sup>13</sup> We discuss the Doman-Delacato program here with perceptual and perceptual-motor approaches because many of their remedial activities did focus on motor and perceptual-motor training. However, it also differed in many ways, especially with respect to focusing on the family as a whole and purportedly training the brain rather than behavioral symptoms.

<sup>14</sup> American Academy for Cerebral Palsy, American Academy of Physical Medicine and Rehabilitation, American Congress of Rehabilitation Medicine, Canadian Association for Retarded Children, Canadian Rehabilitation Council for the Disabled, National Association for Retarded Children

<sup>15</sup> Definitions of full inclusion vary, but two features included in most conceptualizations of full inclusion are that students with disabilities should be educated totally in the regular classroom and in their home school.