
Encyclopedia of Educational Research

FIFTH EDITION

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LEARNING DISABILITIES

The term "learning disabled" is applied to a heterogeneous group of children who experience difficulty in maintaining normal progress in school but who are not mentally retarded, emotionally disturbed, or physically handicapped. Usually, there is a significant discrepancy between what is expected of the child based on mental and chronological age norms and the child's performance on school tasks or standardized tests. Learning-disabled children also frequently show very different levels of attainment within different areas of school performance or in different basic mental skills.

This article discusses the following aspects of learning disability: (1) definitions, (2) incidence, (3) history, (4) assessment, (5) research, (6) theories and etiology, (7) educational programs, (8) drug treatment, and (9) sources of information.

Definitions. Two commonly cited definitions of learning disability highlight some important issues in the field. The following is from a report by the National Advisory Committee on Handicapped Children (1968):

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

Here is a more recent definition by Kirk and Gallagher (1979):

A specific learning disability is a psychological or neurological impediment to spoken or written language or perceptual, cognitive, or motor behavior. The impediment (1) is manifested by

discrepancies among specific behaviors and achievements or between evidenced ability and academic achievement, (2) is of such nature and extent that the child does not learn by the instructional methods and materials appropriate for the majority of children and requires specialized procedures for development, and (3) is not primarily due to severe mental retardation, sensory handicaps, emotional problems, or lack of opportunity to learn. (p. 285)

Note that although Kirk and Gallagher broaden the definition to include almost any behavioral disability, these definitions emphasize language disabilities. As a consequence, the area of reading disorders is significant within the general category of learning disability. The definitions apply only to children whose disability in one area is incongruent with their performance in other areas. They do not meet expectations based on their age and general mental ability, and the discrepancy cannot be explained in terms of obvious environmental or genetic factors.

The first definition mentions certain conditions, such as brain injury and dyslexia, that are important in the historical development of the concept of learning disability. The conditions that overlap most often with learning disability are reading disorders, minimal brain dysfunctions, hyperactivity, and hyperkinetic syndrome. Most people with one or more of these conditions would be classified as learning disabled, but some learning-disabled children have none of them.

Governmental influence on the definition of learning disability in both research and practice is substantial. During the 1960s, there was much debate over the appropriate terminology and how to define the conditions that have now been subsumed under the broad rubric "learning disability." The Learning Disability Act of 1969 adopted the 1968 definition of the National Advisory Committee on Handicapped Children. This definition has also been used in the Education for All Handicapped Children Act of 1975 (Public Law 94-142) and is at the time of this writing part of the statutory basis for using the concept of learning disability. Given that public moneys are assigned to chil-

dren based on their ability to qualify as learning disabled under the regulations pursuant to the definition (*Federal Register*, 1977, p. 65083), the definition is more than an intellectual construction. Since all states now recognize learning disability as a handicapping condition (though terminology varies), the statutory role played by the federal government has ramifications both for service and for research.

The ramifications of a statutory definition are most apparent in the arena of public education, where special services are afforded children who meet certain requirements. These additional services are specifically mandated on the basis of rather broad criteria. The limiting factors in service are program availability, personnel expertise, and fiscal resources. Often these three factors reduce essentially to the fiscal ability of a given school entity to provide personnel, equipment, and space. The federal definition has been adopted by most states, though small variations provide for a myriad of different interpretations. For example, some states, in an effort to control the number of people defined as "learning disabled" adopted operational definitions of a psychometric nature (Mercer, Forgnone, & Wolking, 1976). This tactic, similar to that proposed by the federal government (*Federal Register*, 1976), aims at assessing the difference between intelligence and measured performance. This difference is the most widely accepted sign of learning disability. Other states also wishing to limit the number of people categorized as learning disabled, and hence eligible for fiscal assistance, have adopted other methods. For example, one state requires evidence of neurological impairment in order for the child to be classified as learning disabled. The major point here is that the looseness of the federal definition compels the states to adopt procedures to limit the number of children served. The operational definitions seldom capture the richness of the conceptual definition (Senf, 1978).

Research is also affected by governmental influence on definitions, and on the procedures used to select children for learning-disability programs. Naming a concept has a tendency to reify it, and researchers have accepted as learning disabled those children who have been so designated by school systems. Consequently, research deals with samples of learning-disabled subjects who may not have very much in common from one research site to the next. The question immediately arises of whether discrepant research results may be due as much to differences in the samples studied as to experimental manipulations (Senf, 1976, 1977). Thus, research results cannot be interpreted with confidence. Comparability of study to study across time and space requires that researchers agree on a definition of the term "learning disability" and select subjects accordingly (Senf, 1977).

Incidence. The federal government, on the basis of expert testimony, concluded that 1 to 3 percent of the children aged 3 to 21 have a significant learning disability. This percentage is arbitrary, however, because the term

"learning disability" was not first defined and because no empirical assessment was ever made. Rather, the figure 1 to 3 percent was simply accepted, and assessment procedures were then designed in such a way that no more than 3 percent of those assessed have been categorized as learning disabled (*Second Annual Report to Congress*, 1980). Naturally, the incidence of learning disability is not the same in all school districts or in all states; the incidence varies widely as a function of such variables as available services, affluence, the history of special education programs, and so on. Estimates of incidence pertain to elementary-age children in most cases, but there has been an increasing emphasis on identifying learning disabilities at the secondary level, in college, and among adults who are not students (Barbaro, 1981).

It is crucial to recognize the extreme heterogeneity of the learning-disabled population. This stems from a number of different causes, including broad conceptual definitions, a lack of standardized operational definitions, and the strong influence of political, social, and fiscal factors on the labeling process. Underachievement and failure to respond satisfactorily to the regular classroom environment are central to the identification of learning disability. Dealing with the failure of a child to adapt to an educational environment involves understanding the characteristics of both the child and the educational environment. Fiscal considerations also have a strong influence on the labeling process; labeling a child "learning disabled" creates an obligation to provide special services, which are more expensive than the regular instructional program. In summary, since there is no standard procedure for diagnosing learning disabilities, incidence statistics depend primarily on how the discrepancy between potential and performance is defined and measured, on the school's definition of nonadaptive behavior, and on the availability of funds to serve learning-disabled children.

History. The concept of learning disability is relatively new in comparison with other major concepts in special education—for example, mental retardation, emotional disturbance, and physical handicap. The concept, introduced by Kirk in 1962, overlapped such earlier concepts as reading disorders, perceptual handicaps, and minimal brain dysfunction, and was more descriptive of the behavioral deficit without being limited to any etiological explanation.

The history of the study of learning disability goes back to earlier studies of brain-injured and otherwise neurologically impaired children. The link between the two fields of study is in the overlap of symptoms. Many children with no known history of brain injury display, in a mild form, many of the behaviors that characterize children known to have brain injury.

Orton (1937) argued that delays or dysfunctions in the development of cerebral dominance were responsible for many of the language disabilities observed in children. According to Orton, normal development of language skills requires that one cerebral hemisphere control the

production and processing of linguistic stimuli, and if such normal cerebral specialization does not develop, the child experiences difficulties in language and symbol processing. Werner and Strauss (1941) studied children with language- and perceptual-processing disabilities and introduced the idea of exogenous symptoms (resulting from brain injury) and endogenous symptoms (genetically determined anomalies).

The behaviorist orientation of the early 1960s emphasized descriptions of behavior rather than research on the etiology of behavior. This was also the period during which language and mathematical abilities were analyzed into many specific components on the basis of information-processing models. This led to the practice of defining learning disabilities in terms of behavioral disabilities in such specific tasks as visual discrimination, auditory-visual integration, auditory-sequential memory, and visual-motor integration. The earlier emphasis on neurological explanations of learning disabilities was diminished by the behavioral, environmental emphases in the late 1960s and early 1970s.

More recently there has been a growth of interest in neuropsychological explanations of learning disabilities (Gaddes, 1980), primarily as a result of discoveries in the neurosciences. Most current perspectives on learning disability call both for descriptions of specific behaviors and for an awareness of the complex interactions among genetic, environmental, and neurological factors. Senf (1973) and Wiederhold (1974) provide more extensive historical reviews of the study of learning disability.

Assessment. The procedures used to identify learning-disabled children follow from the definition used of "learning disability." The sequence of events leading to the assessment of a child as learning disabled usually includes the following. (1) The child fails to perform at an expected level in one or more school-related tasks. (2) The academic problem persists and does not lessen in response to regular classroom activities. (3) Possible causes of the academic problem are checked out and eliminated—for example, motivational problems, emotional problems, or physical disability; mental retardation; sensory impairment; or economic or cultural disadvantage. (4) Diagnostic testing using standardized measures of general mental ability and specific cognitive abilities identifies patterns of abilities and disabilities. (5) The child is classified as learning disabled, and a remediation plan is prescribed.

The classroom teacher is usually the first to take note of anomalous patterns of behavior. In a few school districts, screening for early identification of specific learning disabilities takes place at a prekindergarten or kindergarten level (Keogh, 1977; Wedell, 1980), but usually the first step in the identification process is a teacher referral. It has been claimed that this largely results in the referral of hyperactive children, with problems in maintaining attention and in inhibiting their physical activity, because these children are disruptive and demanding of attention (Ross, 1976). Hypoactive or withdrawn children with simi-

lar patterns of academic performance are less likely to be referred.

When a child's performance does not reach desired levels within the classroom setting, the child is referred to a diagnostic specialist, such as a school psychologist or a learning-disability specialist, who does diagnostic testing and tries to determine the cause of the problem. Such a procedure would most likely include classroom observation, screening for auditory and visual acuity, parent interviews, and administration of a test of general mental ability, such as the Stanford-Binet Intelligence Test or the Wechsler Intelligence Scale for Children (WISC). If the child achieves an IQ score below 80, the poor classroom performance might be attributed to general mental retardation. Identification as learning disabled usually requires an IQ in the normal range (but see Ames, 1977, for further discussion of this issue).

The WISC is one of the most commonly used diagnostic instruments because it measures twelve different areas of performance. Six of the tests measure verbal abilities, and six measure other areas of nonverbal performance. A common pattern on the WISC among learning-disabled children is a low score on the Verbal scale in comparison to the score on the Performance scale. However, children who perform at the "gifted" level on the verbal scale may be identified as learning disabled because of low scores on the Performance scale (Schiff, Kaufman, & Kaufman, 1981). The Verbal scale includes subtests in areas directly related to reading and language problems (Vocabulary, General Information, and Similarities), as well as in arithmetic. Since referral by the teacher is often made because of below-average performance in reading or arithmetic, one would expect such children to perform poorly on tests that measure related skills.

Further diagnostic testing is usually done in specific academic skill areas in order to ascertain the nature of the problem. Diagnostic reading tests such as the Gates-McKillop Reading Diagnostic Test (Gates & McKillop, 1962) and the Spache Diagnostic Reading Scales (Spache, 1963) break down the reading process into components. Arithmetic skills can be assessed using such a test as the Stanford Diagnostic Arithmetic Test (Beatty, Madden, & Gardner, 1966) and underlying language processes with the Illinois Test of Psycholinguistic Abilities (Kirk, McCarthy, & Kirk, 1968). Perceptual abilities are assessed under the assumption that perceptual disabilities can explain certain anomalous patterns of behavior. Visual perception, visual-motor integration, and auditory-visual integration are perceptual areas often explored through diagnostic testing.

Neuropsychological assessment is also frequently done, especially in medically oriented settings. Although many of the tests in this area were originally validated on persons known to have brain damage, the tests have been adapted so that neuropsychological models can be used to describe a specific pattern of performance (Gaddes, 1980). Among the most commonly used neuropsychological batteries are

the Spreen-Benton Comprehensive Examination for Aphasia (1977) and the Halstead-Reitan Neuropsychological Test Battery.

This, generally, is the assessment process, but the specific procedures used vary widely. To a great extent, assessment depends on the particular setting and on the training and theoretical orientation of the diagnostician. Just as there has been considerable controversy over the definition of the term "learning disability," so there is a wide range of assessment procedures and decision rules used to identify a learning-disabled child.

Research. Most of the research on learning disabilities has compared groups of children identified as learning disabled with groups of "regular" classroom children (Senf, 1976). Hundreds of different characteristics have been studied in such research (Weener, 1981). Some studies have focused on achievement and on performance on measures of mental ability similar to those used in the selection process, while other studies are designed to test particular hypotheses about specific deficiencies in learning-disabled children.

A common finding of these studies is that the average score of the learning-disabled group is significantly below the average score of the regular classroom group. Both groups show a very wide range of scores on all variables that have been studied, and the range of scores within the learning-disabled group is as great as the range of scores within the regular classroom group. In a typical comparative study 23 percent of the learning-disabled group scored higher than the average of the regular classroom group (Weener, 1981). The picture is of consistent and significant group differences, but also of considerable overlap between the two groups. Weener estimates that in the typical study the average difference between the scores of the learning-disabled and regular classroom groups was about one-sixth of the range within either group.

Learning-disabled and regular classroom groups consistently differ to a great extent with respect to some variables, whereas other variables show relatively small and inconsistent differences. A study of these differences can provide an understanding of how learning disabilities are identified. The most consistent difference is in reading comprehension, but groups of learning-disabled children consistently score lower in mathematics as well. The Wechsler Intelligence Scale for Children (WISC) provides interesting comparisons because it consists of subscales measuring different cognitive processes.

The subscales on the WISC on which groups of learning-disabled children show the greatest deficits are Information, Arithmetic, Similarities, Digit Span, Vocabulary, and Coding. Subscales on which the learning-disabled groups show no consistent deficit are Picture Completion, Picture Arrangement, Object Assembly, and Mazes. Bannatyne (1968) suggests grouping the subscales into three categories—conceptual, spatial, and sequential—according to the cognitive skill tested. When Rugel (1974) reviewed

twenty-five studies that had reported WISC scores of learning-disabled readers, he found (in line with Bannatyne's suggestion) that in twenty-two of the twenty-five studies the subscales measuring spatial abilities yielded the highest scores and that in every study, performance on the spatial subscales was better than performance on the sequential subscales. It is not uncommon to find that children identified as learning disabled or reading disabled score higher than control groups on tasks requiring holistic visual processing, such as the Mazes or Picture Completion subtests of the WISC. The August-September 1981 issue of the *Journal of Learning Disabilities* reviews this line of research and presents a series of original papers on the topic.

Many studies of learning-disabled children have been designed to test specific hypotheses about the nature of their deficits. Most of these "deficit hypothesis" studies focus on some aspect of information processing, although a small number look at such social and personality variables as empathy (Bachara, 1976), self-esteem (Larsen, Parker, & Jorjorian, 1973), and ego and superego strength (Stawar & Lamp, 1974).

Attention and memory are the two most commonly measured variables showing consistent deficits for the learning-disabled group. Various aspects of attention have also been studied, including vigilance (Doyle, Anderson, & Halcomb, 1976), motor impulsivity (Dykman et al., 1971), auditory distractability (Lasky & Tobin, 1973), and selective attention (Tarver et al., 1976). Others have studied heart rate as a physiological index of attending behavior (Porges et al., 1975; Sroufe et al., 1973). Disruptive behavior in the classroom is one of the first factors noted in identifying learning-disabled children; therefore, it is not surprising that studies show that deficits in the area of attention are both great and consistently observed.

Studies of memory have also shown consistent deficits among the learning disabled. The deficits are present for both language and nonlanguage stimuli presented either aurally or visually (Swanson, 1978; Torgesen, Murphy, & Ivey, 1979; Bauer, 1977; Guthrie & Tyler, 1976). Usually, the performance of a learning-disabled group is like that of a regular classroom group two years younger, but Torgesen & Hall (1981) have found small groups of learning-disabled children with memory deficits of four grade levels and more. One of the most common explanations of memory deficit is that certain children do not develop normal rehearsal strategies. Research on central and incidental memory indicates that learning-disabled children use memory techniques similar to those used by younger children (Hagen & Barclay, 1981). Control of attention is also important in memory; it may be that the two processes are not separate, but are alternative ways of looking at one phenomenon.

Etiology. The only well-developed theories of the causes of learning disability involve neurological factors, including brain damage, genetically determined brain anomalies, or neurochemical deficiencies. The definition of learning disabilities effectively excludes competing etio-

logical explanations, by excluding behavioral anomalies which are caused by mental retardation, emotional problems, physical disability, or environmental deprivation. The interesting aspect of this etiological bind is that the term was well received largely because it replaced the more stigmatizing label "brain damaged." In the early 1960s the term "minimal brain damage" was discarded in favor of a behavioral description of disability. At that time, etiology was seen as irrelevant to the issue of remediation.

The efficacy of neurological explanations of learning disabilities is a function of what is known in the field of neurology and the subfield of developmental neuropsychology. One should, of course, beware of the fallacious argument that all behavior is controlled by the brain and therefore a person with behavior problems must have something wrong with his or her brain. However, recent developments in the brain sciences have served as the basis for potentially more differentiated explanations of learning disability. Research on split-brain patients and on patients known to have brain injury has led to the formulation of theories of functional specialization in the brain. In particular, the role of the right hemisphere in spatial, holistic processes and of the left hemisphere in linear, analytic processes has been extended to apply to many educational issues. The primary application of these ideas in the area of learning disability is in the hypothesis that some learning-disabled children fail to develop normal hemispheric specialization. Letter reversal and a general inability to relate visual forms to auditory representations are seen as symptomatic of a lack of functional separation of the right and left hemispheres. This idea has a long history, going back to Orton (1937), who asserted that reading problems resulted from the failure of one hemisphere to become the dominant processor of linguistic stimuli. More recently, Witelson (1976) hypothesized that spatial perception abilities, which are usually localized in the right hemisphere, may be represented in the left hemisphere also in disabled readers, producing decoding and comprehension problems. Although such notions have intrigued many theoreticians, there has been scant empirical support for the idea that functional specialization develops differently in normal children from the way it develops in learning-disabled children (Kinsbourne, 1980; Canning, Orr, & Rourke, 1980).

To a great extent, neuropsychological theories of learning disability are based on knowledge of brain functioning, much of which was obtained from studies of patients known to have brain injuries. Studies of the behavior of people known to have brain injuries or surgical excisions have revealed some of the relationships between location and function in the brain. When it was noticed that some children without brain injury display some of the same behavior as people with certain brain lesions, it was inferred that such children suffered from a dysfunction or developmental lag in the same part of the brain. However, there is not a neat one-to-one relationship between

behavior and particular locations in the brain; therefore, inferences from behavioral disabilities to brain dysfunctions are tenuous. Gaddes (1980) characterizes a variety of learning disabilities in terms of brain functioning.

Neuropsychological theories treat cognitive abilities as functions of different parts of the cortex; attention and alertness are described as functions of the reticular activation system, which includes spinal-cortical connections and the mid-brain, in particular the hypothalamus, which plays a key role in integrating sensory information with physical responses. The rather high incidence of abnormal electroencephalographic (EEG) patterns among learning-disabled children is also used as evidence for neurological explanations of attentional disorders (Gross & Wilson, 1974). The similarities of the EEG anomalies in learning-disabled children to the EEG anomalies associated with cerebral palsy and epilepsy are used to support the hypothesis that the underlying problem in learning-disabled children is neurological.

Biochemical theories of learning disability are, in a sense, neurological theories, because explanations are in terms of the neurochemistry of the brain. The biochemical theory set forth by Wender (1977) accounts for the behavior of children with hyperkinetic behavior syndrome. This theory asserts that many problems of attention and learning can be explained by a "functional underactivity of one or more of the monoaminergic systems" (p. 18). These monoamines are hypothesized to play a key role in increasing and decreasing the amount of neurotransmitters at neuronal junctions. The neurotransmitters determine both the appropriateness and the rapidity of a response to a situation. There is some direct evidence for monoamine deficiencies in some learning-disabled children, but for the most part, the theory rests on inferences and analogies from studies of diseases and from animal studies.

Another biochemical hypothesis concerns the effects of food additives on attention and learning. Feingold (1975) suggests that hyperactivity in some children is the result of a nonallergic reaction to food dyes and artificial flavors. Furthermore, Feingold suggests, there may be a genetic explanation of why some children react to these chemicals while others do not. The dyes and flavors are presumed to effect neurotransmitters in a manner similar to that described by Wender (1977). Conners (1980) reports the results of a series of studies that discount some of the strong claims made by the proponents of the theory, but also presents evidence for a strong effect in some learning-disabled children. Conners attributes much of the positive effect of treatment to changes in parent and child expectations and to the restructuring of family relationships that results from initiating a new diet.

Neurological explanations leave unanswered the question of the origin of neurological conditions. Genetic factors are investigated by studying the incidence of behavioral anomalies in ancestors and siblings. Environmental factors are studied by trying to determine whether particular incidents or living conditions play a role. There are

no genetic explanations that can be applied to all types of learning disability, but some investigators advocate a genetic explanation of certain reading disorders. The fact that the incidence of learning disability is five times as great among boys as among girls is cited as evidence that certain differences in brain function may be sex-linked.

Environmental and neurological explanations tend to focus on prenatal events and on events during birth. A relatively high percentage of learning-disabled children are involved in some type of prenatal or birth trauma (Rudel, 1978).

Ideas about the etiology of learning disability will continue to change as long as new relationships between human behavior and the external milieu are found. Simplistic theories will always have their appeal, but most current theories acknowledge the complex relationships among behavioral stimuli, people's expectations, and genetic factors. Learning disabilities are many in number, and there will probably never be a single theory which explains the causes of all learning disabilities. Rather, different theories will be developed as progress is made in separating the symptoms associated with specific learning disabilities into more homogeneous subgroups.

Educational Programs. Prior to the enactment of the Education for All Handicapped Children Act of 1975 (P.L. 94-142), there was a tendency for learning-disabled children to be served in separate facilities. Often, these facilities were connected with universities or were private facilities designed to serve both psychological and educational needs. With the Education for All Handicapped Children Act (and through services provided prior to the act to those categorized as "crippled and other health impaired"), the federal government and state governments encouraged local education agencies to provide programs for learning-disabled children. In the last half of the 1960s, these programs were primarily based on a model appropriate for the very severely handicapped. Children were in special settings for a majority, if not the entirety, of the school day. Often, learning-disabled children were segregated for their entire educational program, sometimes to the extent of being placed in a so-called special school.

This trend gave way to the resource room model, which called for regular class placement but with a significant amount of time spent in a special classroom for instruction in areas in which the children were substantially deficient. A resource room was staffed by a specialist, had a small student-teacher ratio, and had instructional materials, teaching devices, and other professional support services that lent themselves to individualized instruction.

The resource room would often be a child's primary classroom, though increasingly it was a place to go for remediation in one or two curriculum areas. Pressures for fiscal restraint and the belief that children do better when with their peers led to less widespread use of resource rooms and special segregated classes and to the serving of learning-disabled children through the regular educational program. This reintegration was formalized in Pub-

lic Law 94-142, which requires that handicapped children be educated in the "least restrictive environment." Much argument subsequently ensued over what was meant by that phrase, with some maintaining, quite correctly, that the regular classroom greatly restricted learning-disabled children—it was, after all, the environment in which such children had initially failed (Cruickshank, 1977b). However, it became widely accepted that "least restrictive environment" referred to the regular classroom; thus, mainstreaming—the serving of learning-disabled children in the regular classroom—was mandated without evidence of its effectiveness. It is obvious that fiscal and political considerations dictated this circumstance.

Educational programming considerations gave rise to a new professional role, that of the itinerant, or consulting, teacher. This person, often a specialist in learning disability, assists the regular classroom teacher in developing special lessons for learning-disabled youngsters in the regular classroom. Often, children still spend some portion of their time in a resource room, while the learning-disability specialist helps ease their transition into the regular classroom. While such a procedure is certainly cost-effective and may possibly reduce the stigma of being labeled "learning disabled," questions remain as to whether the services provided the child are as effective as those provided in more segregated settings (Ito, 1980). Given that the placements are so heavily determined by funding and, hence, political considerations, the change in practices over time has been so rapid as to prohibit sufficient empirical analysis of the benefits and deficiencies of the various placement arrangements.

Educational programs for learning-disabled children can aim directly at particular deficiencies in cognitive skills or achievement (e.g., word recognition or sound-symbol associations), or programs can focus on attentional and motivational issues. One of the dominant approaches to treating deficits in achievement or cognitive skills is the diagnostic-prescriptive procedure. This begins with a broad analysis of achievement in specific areas and of the cognitive skills that are presumed to underlie academic achievement. On the basis of performance on diagnostic tests, areas are selected for remedial activity. The teacher or specialist then develops or selects (from available resources) activities intended to help the child reduce the deficit. Such remedial activity could involve specific skills in reading or arithmetic or specific cognitive functions, such as short-term memory, auditory-visual association, or visual-motor coordination. For each of the commonly used diagnostic tests, there are published aids and materials for strengthening specific deficit areas.

It should be recognized that remedial programs are based on assumptions and values held about education. Implicit in the diagnostic-prescriptive procedure are ideas about the value of the well-rounded individual and the importance of basic language and mathematical abilities. A model of education that values the development of unique, idiosyncratic abilities would not give as much em-

phasis to the remediation of specific deficits, but would provide opportunities for the expression of individual strengths and propensities.

Programs have been developed to deal with issues of attentional control. Douglas (1972) designed a series of cues and written messages to reorient the child to relevant tasks and reduce the time spent attending to irrelevant stimuli. Meichenbaum (1976) designed procedures to teach children self-control. This method, referred to as "cognitive behavior modification," involves a series of steps combining adult modeling, verbal reinforcement, and self-instruction. Cruickshank (1977a) strongly advocates that the environment of the child with attentional problems be controlled so that all stimuli unrelated to the learning task are eliminated. Such a classroom would include learning carrels with blank walls and a classroom which is stripped bare of all but the essential elements. In such a classroom, Cruickshank argues, the intensity of the learning material is increased because the background against which the material is presented is so bare and uninteresting.

Other educational programs are based on hypotheses about underlying developmental deficits in perceptual or perceptual-motor systems. Auditory-visual integration processes related to reading (Birch & Belmont, 1964) and certain aspects of perceptual-motor development (Frostig & Maslow, 1973; Kephart, 1971) are presumed to underlie academic achievement. Remedial exercises involving such perceptual systems have been developed for classroom purposes, but methodologically sound studies of the efficacy of these exercises are lacking (Myers & Hammill, 1976).

Drug Treatment. Three types of drugs have been used in the treatment of children with learning disabilities: (1) central nervous system stimulants, (2) antianxiety and antipsychotic agents, and (3) antihistaminic and anticonvulsant drugs. Central nervous system stimulants are the drugs of choice because of the high percentage of positive responses and the relatively low percentage of negative side effects (Millichap, 1977b). The most commonly used drugs of this class are methylphenidate (Ritalin) and dextroamphetamine (Dexedrine). Common dosages for Ritalin are 10–20 mg per day, and for Dexedrine are 5–10 mg per day. These are relatively short-acting drugs that act on the peripheral nervous system in such a way as to produce an effect similar to that produced by the stimulation of the sympathetic branch of the autonomic nervous system. The physiological effects of amphetamines include dilation of pupils, rise of blood pressure, increase of heart rate, constriction of blood vessels, variability of cardiac output, and relaxation of intestinal muscles (Kornetsky, 1975).

These drugs reduce the amount of negative behavior associated with hyperactivity. Some children show a prompt and dramatic improvement; a majority show some or considerable improvement; and some do not respond or become worse (Omenn, 1973). Millichap (1977b) re-

ported that of 367 children treated with Ritalin, 84 percent showed improvement, and that of 610 children treated with Dexedrine, 69 percent showed improvement. The positive behavioral effects include an increase in attention span and a decrease in restlessness, in inappropriate behavior, and in impulsiveness (Van Dwyne, 1976). Negative side effects of the amphetamines include anorexia (food aversion), weight loss, insomnia, depressive reaction, headache, increased restlessness, and skin rash. Anorexia occurs in approximately 50 percent of children taking Ritalin, but the weight loss stabilizes after four weeks in most cases (Millichap, 1977b). Long-term suppression of growth in height and weight was reported in a study by Safer, Allen, and Barr (1972), but Millichap (1977a) reported no evidence of growth suppression.

The amphetamine drugs are presumed to have their positive effects through their influence on arousal, orienting, and attention. Although positive effects on school achievement, on performance on intelligence tests, and on social behavior are often reported, these effects are considered secondary to the primary effects on selection attention. Use of these drugs is considered when learning disabilities can be linked to hyperkinetic behavior. It is unlikely that the drugs would have a positive effect on children who have deficits in cognitive functions underlying basic reading skills, such as discrimination or auditory-visual integration, or in memory or rote learning.

Considerable concern has been expressed over the use of drugs to alter behavior in young children. It has been claimed that such use of drugs is a method by which those in power (parents, teachers, and doctors) define what is acceptable behavior and, through drugs, control the behavior of the powerless (children) to fit this definition of acceptability. Other concerns have been expressed over the long-term effects of drug dependence and drug susceptibility in later years, although at the present time there is no evidence on these matters. Controversy also surrounds the issue of deciding when and to whom drug treatment is administered. Medically trained personnel are more likely to advocate the use of the drugs for hyperkinetic behavior. Wender (1971) argues for "a trial of stimulant (amphetamine or methylphenidate) therapy in all children in whom the diagnosis of MBD (minimal brain dysfunction) is suspected" (p. 130). For the most part, educators and psychologists believe that medication should be used only as a last resort, after or in conjunction with remedial education or behavior therapy. Ross (1976) argues: "The changes in hyperactivity, attention, and motor control which can sometimes be brought about by drugs can also be produced without the use of drugs by the application of psychological principals in classroom management" (p. 101).

In summary, stimulant drugs produce a wide variety of changes in behavior and in cognitive and perceptual-motor functions. Although the precise mechanism of action of these drugs in children is not known, it is presumed that the positive effects result from improvements in selec-

tive attention resulting from active inhibition or voluntary control (Connors, 1976). The question of what are the proper roles of behavioral and drug treatment of learning disabilities remains controversial.

Sources of Information. In its two-decade history, the study of learning disability has generated a number of central information sources. The oldest monthly source specifically geared to researchers and practitioners in the multidisciplinary field of learning disability is the *Journal of Learning Disabilities*. Another journal is the *Learning Disability Quarterly*, a publication of the Division for Children with Learning Disabilities of the Council for Exceptional Children. A journal that carries practical information regarding children having school problems not limited to learning disability is *Academic Therapy*. The interested reader should be sure to examine journals in related fields, such as reading, speech and hearing, abnormal psychology, school psychology, pediatrics, neurology, neuropsychology, optometry, psychiatry, social work, occupational therapy, and psycholinguistics, to name only the most important.

A number of organizations are heavily involved in serving the learning disabled, as well as in forming professional groups concerned with personnel preparation and research, for example, the Division for Children with Learning Disabilities of the Council for Exceptional Children. The Association for Children with Learning Disabilities (ACLD) has a network of chapters nationwide that provide information and services to parents, professionals, and children. The ACLD also publishes a newsletter, *ACLD Newsbriefs*, which contains an occasional article and current information on issues in the field. The Orton Society publishes a yearly bulletin; it is a most important resource for those who study language disorders.

The most comprehensive source of information on contact persons in the field is the *Directory of Learning Disability Resources*. This directory lists the names and addresses of persons involved in federal and state government, journals and other written materials, the location of personnel preparation programs, and other information.

Information on a given state's programs can be obtained by writing to the Coordinator of Learning Disability Programs, Division of Special Education, Department of Education in the state capital. This address should suffice, and your letter should reach the appropriate person.

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See also Handicapped Individuals; Individual Differences; Mental Retardation; Psychological Services; Neurosciences; Rehabilitation Services; Special Education.

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LEGAL EDUCATION

See Licensing and Certification; Professions Education.

LEGISLATION

Throughout most of American history, the states and local districts have carried the primary responsibility for public education. The relatively passive federal role was limited to a few areas of clear national concern or responsibility. This began to change during the early 1960s, as an era of federal social activism developed that would endure through the 1970s. Early in this era the civil rights movement and associated court decisions helped lead to the enactment of laws intended to end racial discrimination and segregation in the nation's schools and colleges. Concurrently, the Johnson administration enlisted education in its War on Poverty. Later, as standardized achievement test scores fell and public dissatisfaction rose, Congress and the states tried to legislate improved educational quality.

This article focuses on federal and state education legislation of the past twenty years. It is organized into three major sections. The first section discusses civil rights legislation. The second and third sections consider strictly educational legislation, looking first at the elementary and secondary education and then at higher education.

Civil Rights

During the 1960s and 1970s Congress enacted civil rights legislation to clarify and extend the guarantees of the Fourteenth Amendment. Most crucial to understand from the educational point of view are the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and

the 1978 amendment to the Age Discrimination in Employment Act of 1967.

Civil Rights Act of 1964. The U.S. Supreme Court handed down its famous decisions in *Brown v. Board of Education* in 1954 and 1955, outlawing the South's ubiquitous *de jure* dual public school systems. Southern legislatures responded to *Brown* by enacting obstructionist legislation, the most effective known as "pupil assignment laws," which resisted desegregation by making transfer cumbersome and time-consuming and by placing the burden of forcing compliance on black children and their parents. This strategy was successful; ten years after *Brown*, fewer than 10 out of every 100 southern black children were attending school with whites.

Meanwhile, the civil rights movement grew apace. Congress responded by enacting the Civil Rights Act of 1964. Titles IV and VI applied significantly to public education. Title IV, Desegregation of Public Education, designated three duties for federal officials. First, the commissioner of education was instructed to survey "the lack of availability of equal educational opportunities for individuals . . . in public educational institutions" and to report his findings within two years. The resulting report, entitled *Equality of Educational Opportunity* (Coleman et al., 1966) and known as the "Coleman report," was popularly interpreted as offering support to desegregation policies and raised an enduring controversy. Second, the commissioner was authorized to render technical assistance to local districts to prepare and implement desegregation plans. This authorization grew into a \$40 million program by the late 1970s. Finally, the attorney general of the United States, after receiving and reviewing a complaint alleging an equal protection or access violation, was authorized to institute a civil action for relief. Title IX of the Civil Rights Act supplemented this provision by empowering the attorney general to intervene in any suit alleging denial of equal protection rights that he believes is of general public importance.

Title VI, Nondiscrimination in Federally Assisted Programs, asserted in Section 601: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." All federal departments and agencies, including the Department of Health, Education, and Welfare (HEW), that made aid payments were directed to issue guidelines to enforce Section 601. Failure by aid recipients to comply could result in the termination of federal assistance. This provision and the Title IV funding incentives gave the federal government important alternatives to litigation.

Ironically, the Civil Rights Act has been least effective in helping to eradicate school desegregation throughout the North, the region of the country that provided the political support needed for enactment in 1964. Southern school desegregation was generally complete by 1971, following a set of tough Supreme Court rulings late in 1968

and in 1969, which mandated immediate and comprehensive action and which elevated the HEW Title VI compliance guidelines to the status of standards. The Supreme Court then turned its attention to the North, first, in *Swann v. Charlotte-Mecklenburg County Board of Education* (1971), by declaring busing an acceptable means of school desegregation and second, in *Keyes v. School District No. 1, Denver Colorado* (1972), by asserting that northern segregation was of a *de jure* nature and by requiring districtwide remedies. With the specter of forced districtwide busing a reality, northern public opinion reversed, manifesting itself in congressional "busing amendments" that set strict limits on the use of federal funds to pay for busing. Title VIII of the Education Amendments of 1972 and the Equal Educational Opportunity Act of 1974 are early examples of this sort of congressional action. Unfortunately, these laws succeeded merely in placing heavier desegregation expenses on the states and local districts and in delaying passage of important funding legislation. Meanwhile, court-ordered busing mandates remained in effect. As the nation enters the 1980s, new desegregation activity has slowed considerably.

Title VI has also served as the basis for federal guidelines for bilingual education in school districts educating significant numbers of students with limited proficiency in English because they have been brought up speaking another language. Known as the "*Lau* remedies," the guidelines stemmed directly from the U.S. Supreme Court, which held in its 1957 decision in *Lau v. Nichols* that Title VI required affirmative steps by the schools to meet the needs of such students. The remedies outline acceptable pedagogical approaches and designate requirements for districts as they develop and submit program plans to the Office of Civil Rights (OCR). Since 1975, OCR has negotiated agreements with several hundred districts, including those enrolling students who in the majority speak limited English. Although the *Lau* remedies remain in effect, they have undergone harsh attacks in Congress and by education groups.

Finally, litigation involving Title VI and institutions of higher education has demonstrated the law's inescapable ambiguity. In 1973, for example, a U.S. court of appeals decided in *Adams v. Richardson* first, that dual state systems of higher education must be eliminated, and second, that the traditional black colleges, which have served as important sources of community and racial pride while preparing many of the nation's black professionals, should be strengthened. The 1978 U.S. Supreme Court decision in *Bakke v. The Regents of the University of California* was another important ruling. The five-to-four majority declared that the university had unlawfully discriminated against Bakke, a Caucasian, on the basis of race in denying him admission to the medical school at Davis. But while the Court accepted Bakke's claim of "reverse discrimination," it also voted five to four that admissions decisions may appropriately take race and ethnic origin into account.

Title IX. Congress extended civil rights protections to women through Title IX, Prohibition of Sex Discrimination, of the Education Amendments of 1972 as follows: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." In 1979, Shirley Chisholm, Democratic congresswoman from New York, evaluated the significance of Title IX by stating: "Women have always occupied a secondary status in the United States. And, in the same way that it was necessary for Blacks to get recognition by virtue of the Voting Rights Act and the Civil Rights Act—Title IX is of the same import to women ("An Interview," 1979, p. 504).

Controversy has surrounded Title IX, which, unlike Title VI of the Civil Rights Act, applied only to education. University presidents and football coaches flocked to Washington to express their concerns and fears. Regulations were issued in 1975. Since their adoption, many compliance agreements have been negotiated, especially in areas such as vocational education, physical education, and elementary school extracurricular activities. Opponents, however, have generally been successful, by recourse to the courts, in avoiding compliance enforcement in employment areas. Perhaps the most successful congressional opposition tactic has been to attach limiting amendments to budget authorization bills. The fact remains, however, that discrimination on the basis of sex in education is now against the law of the land. Although complaints have been loud and widespread and compliance is far from universal, genuine progress has been made by women through Title IX.

Section 504. Section 504 of the Rehabilitation Act of 1973, resulting partially from two federal district court decisions in 1971 and 1972, has been called the "civil rights act for the handicapped." It states: "No otherwise qualified handicapped individual in the United States . . . shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Congress applied this mandate to public schooling with passage of Public Law 94-142, the Education for All Handicapped Children Act of 1975, requiring that all handicapped children be provided a free and appropriate education program. By 1980 all states had mounted comprehensive programs and were making substantial progress toward guaranteeing the educational rights of their handicapped youth. Section 504 has also significantly affected institutions of higher education, especially after 1977 when HEW regulations were issued, that frequently resulted in expensive building and grounds alterations to provide better physical accessibility for handicapped students.

Age Discrimination in Employment Act. Congress passed the Age Discrimination in Employment Act (ADEA) in 1967, forbidding discrimination in employment

on the basis of age for people between 40 and 65 and generally setting the minimum mandatory retirement age at 65. In 1978 Congress amended ADEA. Prior debate had centered on the upper age limit for mandatory retirement, which had been accepted in 1967 with almost no discussion. Some argued that no upper age should be set, that age alone is a poor indicator of ability to work productively, and that forced retirement for many is equivalent to forced unemployment and hardship; others asserted that room must be made for younger, frequently disadvantaged, job applicants who deserve access to the work force and that younger employees would do better work. Congress responded with a compromise, raising the minimum mandatory retirement age to 70, except for tenured college and university faculty members, whose minimum mandatory retirement age remained at 65 until July 1, 1982, when their protections were extended to age 70. From the institutional point of view, some maintain, the 1978 ADEA amendments will exacerbate the already serious problem of too many faculty members with tenure, which restricts entry of young scholars and thereby significantly diminishes the quality of research and teaching. However, these assertions are debatable.

Elementary and Secondary Education

The Johnson administration's War on Poverty got under way with passage of the Economic Opportunity Act of 1964, which included the Job Corps, Community Action, and Head Start. The following year, concerted federal activism in education exploded upon the scene with congressional enactment of the Elementary and Secondary Education Act (ESEA). ESEA contained a major title to provide compensatory education services for economically disadvantaged students, three titles to improve the general quality of elementary and secondary schooling, and a fifth title to strengthen the traditionally weak state education agencies. Congress subsequently expanded the purviews of ESEA over the following fifteen years. Through all of this, federal action tended to stimulate complementary state legislation.

Three important areas of elementary and secondary education legislation concerned equality of educational opportunity in school funding and programming, quality of schooling, and collective bargaining rights for public school employees.

Equality of Educational Opportunity. Equality of educational opportunity entered public policy debates during the mid-1960s. Evolving out of the larger civil rights movement and federal antipoverty activity, equality of educational opportunity had to do with both the goal of desegregation in the nation's schools and the idea of using public elementary and secondary schools to compensate poor and minority children for disadvantageous home backgrounds. The schools, in other words, were expected to give special help to the educationally needy so that by the time of high school graduation they would be prepared to com-

pete with children from middle-class families for success in America. In practice, this led to efforts to provide schools in disadvantaged areas with resources at least equal to those received by schools enrolling more advantaged students. This section treats equality of educational opportunity legislation as it relates to school funding and programming.

Funding. For years people believed that a major cause of different educational outcomes among schools was different levels of expenditure among the schools. Although this view has been discredited by a variety of studies, beginning with the Coleman Report (Coleman et al., 1966), the agreement that there should not be great disparity in funding among school districts has had persistent legal and social acceptance. Both federal and state legislation has addressed this issue.

Since 1965, overall spending on public elementary and secondary education has risen markedly, but after an initial increase in 1965 the federal share has remained relatively small and confined to targeted populations, such as the poor or those who speak limited English. Federal money has made up roughly 8 to 9 percent of total revenues annually for the past fifteen years. Through ESEA and subsequent legislation, the federal share has had only a small influence on the equalizing of school expenditures among and within states. Brown and Ginsburg (1978) argued that at the interdistrict level "federal aid does little to reduce . . . local property wealth-based advantages, . . . partly because the federal share of total revenues is small and partly because federal programs tend to be directed toward low-income areas rather than areas of low property wealth" (pp. 121-122). Finally, beginning in 1971, after promulgation of the Office of Education's "comparability regulations," whereby equal distribution of local and state resources throughout district must be guaranteed before Title I money can be used, some intra-district funding disparities in large urban areas have been alleviated.

Court decisions throughout the 1970s have encouraged finance reform and limited that reform primarily to the state level. *Serrano v. Priest*, a set of California Supreme Court decisions between 1971 and 1976, adopted the position first argued by Coons, Clune, and Sugarman (1970) that local district property wealth per pupil should not determine the distribution of educational resources. This standard of fiscal neutrality, based on the equal protection clause of the California state constitution, forced the legislature to develop an acceptable alternative. Meanwhile, in 1973 the U.S. Supreme Court ruling on a Texas Supreme Court decision, *Rodriguez v. San Antonio*, decided that education does not fall under the equal protection clause of the U.S. Constitution. This decision raised national concern that the nascent financial reform movement begun by *Serrano* was dead. Five weeks later, however, the New Jersey Supreme Court ruled on *Robinson v. Cahill*, deciding that the New Jersey structure violated the education clause of the state constitution and allaying the fears raised

by *Rodriguez*. Since *Robinson*, state-level finance litigation has virtually been continuous. Legislators have had to respond to the courts.

About one-half the states have produced school finance reform laws in the largely unsuccessful effort to equalize expenditures. This legislation may be divided into three categories: (1) foundation programs that require a certain minimum expenditure per pupil in all districts; (2) equalizing programs that generally determine per-pupil expenditures by reference to the district property-tax rate, regardless of the wealth of that district; and (3) programs that combine a foundation requirement with rewards to less wealthy districts that exert extra effort through a high property-tax rate. At best these programs have allowed some states to make slight progress in reducing per-pupil expenditure differences at a time when states without reform laws have tended to lose ground because of demographic shifts and associated conditions.

In recent years difficult economic times and general public displeasure with the quality of public schooling have led to discussion of and some movement toward more drastic changes in the financing of education. Tax or spending limitations have now been incorporated by legislation or referenda into the funding structures of almost two-thirds of the states. Two important by-products of these efforts have been increases in the state proportions of spending on public schooling and movement toward equalization of expenditures within states. Ironically, the tax-limitation movement, opposed by many who favor reform in educational finance, may inadvertently be accomplishing what the reformers failed to do.

At the federal level, spurred on by high inflation and the so-called mandate to curtail government involvement with elementary and secondary education, the Reagan administration has succeeded in orchestrating congressional passage of deep budget cuts and of the Education Consolidation and Improvement Act of 1981 (ECIA). These steps will affect school finance in two important ways. First, the deep reductions in federal expenditures that began to take effect in the fall of 1981 will, by the 1982/83 school years, have reduced the federal share of the nation's school budget to its smallest portion since 1965, approximately 5 percent.

Second, ECIA increases the power of states and localities to control the distribution of federal education funds. The administration initially proposed block grant legislation that would have combined the large ESEA Title I compensatory education program and the Education for All Handicapped Children Act provisions into one title, leaving the states free to parcel out and administer a huge bulk of funds as they might choose. A second title would have combined about forty small federal programs, giving the money to the states for general discretionary purposes. Civil rights groups and others concerned about maintaining services and protections guaranteed only by federal categorical aids legislation consistently opposed the first title. Its defeat was assured when school boards, school

administrators, and state superintendents organizations (groups that favored consolidation in principle) came out strongly in opposition, primarily because they did not want to make the extremely difficult decisions about the allocation of resources between the poor and the handicapped and also because they began to perceive the proposed bill as possibly representing the beginning of the end of federal support for education. Bowing to this widespread and intense opposition, the administration dropped its plan to consolidate the large programs. The administration settled, instead, on a bill that simplified Title I by reducing certain reporting requirements (Chapter I) and which consolidates over 30 small programs into a single block grant to the state and local agencies (Chapter II).

Voucher and tax credit programs are also under serious discussion. Both types of programs would provide government money to students to attend nonpublic schools. Vouchers usually are considered at the local and state levels. No proposed legislation has been adopted, although attempts have been made in several states to place proposals on the ballot. Vouchers would function as admission tickets to any school meeting specified minimum standards. Tuition tax credits, operated through the income tax system, would be allowed to offset expenses associated with sending one's child to a private elementary or secondary school. Several states, including Pennsylvania, Rhode Island, and New Jersey, have adopted forms of tax credit legislation, although most of the laws have been struck down by the courts as unconstitutional on church-state grounds. In 1978 the House of Representatives passed and the Senate narrowly defeated a federal tuition tax credit bill. At the time of this writing, senators Moynihan and Packwood have reintroduced tax credit legislation, with the strong backing of President Reagan and in line with the 1980 Republican platform.

Education service programs. Efforts to achieve equality of educational opportunity in programming at the federal and state levels have been under way since the mid-1960s. Four of the most significant areas of effort are discussed here: compensatory education, school desegregation, bilingual education, and education of the handicapped.

Congress led the way in compensatory education programming by passing Title I of ESEA in 1965. Section 101 of this landmark act declared,

In recognition of the special educational needs of children of low-income families and the impact that concentrations of low-income families have on the ability of local educational agencies to support adequate educational programs, the Congress hereby declares it to be the policy of the United States to provide financial assistance . . . to local educational agencies serving areas with concentrations of children from low-income families to expand and improve their educational programs by various means (including preschool programs) which contribute particularly to meeting the special educational needs of educationally deprived children.

In addition to providing aid to local districts for special programs, Title I assists state programs for migrant chil-

dren, the handicapped, and neglected and delinquent youth. Initially funded at over \$1 billion in 1965, during 1980 Title I distributed over \$3.2 billion in categorical aids to all the states and most of the nation's public school districts, maintaining support for programs that serve about one-half of an estimated ten million eligible children.

Since 1974 Congress has debated whether Title I programs should continue to be funded on the basis of poverty or in terms of scholastic achievement. Studies and compromises have essentially left the original approach in place. In 1978, the Carter administration urged and the Congress enacted the Special Incentive Grants provision, which has designed to encourage and reward higher state spending on compensatory education programs by providing one federal dollar for every two appropriated by the state. Congress has not, however, funded this provision.

Title I effectiveness has been evaluated in terms of program implementation and student achievement. Studies of program implementation indicated numerous problems and weaknesses (cf. McLaughlin, 1974), and the Washington Research Project and the NAACP Legal Defense Fund (1969) produced evidence that Title I funds were frequently being used improperly as general aid. This led to a tightening of administrative reins and the introduction of clear fiscal controls (for example, comparability). More recent evaluations indicate that although problems remain, the basic program principles and purposes have been widely accepted and that a viable fiscal accountability system is now in operation. Estimates of Title I effectiveness in raising student achievement levels are less sanguine. Although a variety of studies have demonstrated that children in the program obtain short-term (one-year) improvement in achievement there is no evidence that these gains are sustained over a longer period of time.

Levels of program implementation and effectiveness notwithstanding, by 1980 sixteen states had enacted categorical compensatory education laws intended to augment Title I funding that would probably meet requirements for incentive grants. Six additional states, which do not qualify for incentive grants, provide funding for compensatory education services by including weighted elements in their general aid formulas.

In 1970 the Nixon administration prompted congressional action in response to Supreme Court efforts to accomplish immediate school desegregation. Funded at \$75 million annually for two years, the Emergency School Assistance Program (ESAP) was supposed to help public schools overcome desegregation-related program difficulties. According to critics, however, ESAP functioned primarily as a payoff to districts that had resisted complete desegregation or as a mechanism to distribute funds for general aid use.

In 1972 Congress replaced ESAP with Emergency School Aid Act (ESAA), which was designed to provide programming support to end racial isolation and discrimination and to ameliorate their effects. ESAA distributes

money on the basis of minority enrollment levels and through national competitions, which identify districts that will benefit from supplemental funds to address the immediate effects of school desegregation. By 1980 ESAA had developed into a \$290-million-per-year program.

In 1967 Congress added a component on bilingual education, Title VII, to ESEA to fund programs for an estimated 2 to 3.5 million children with limited proficiency in the English language. Appropriations have grown from \$7.5 million in 1969 to \$167 million in 1980. Allocation has been on the basis of competition for grants. Title VII funds have occasionally been used to implement the *Lau* remedies, and during the last few years attempts have been made to coordinate these two programs. Following the federal lead, the states have taken a substantial role in legislating bilingual education. In all, twenty-two states, including those with the largest numbers of Spanish-surnamed students, have sponsored bilingual programs.

The states took the lead in providing access to public education for the handicapped. During the 1960s, Massachusetts and New Jersey passed laws that provided model standards for classification, testing, individual programs, special services, and so on. All fifty states have now enacted special education legislation. Meanwhile, Congress, following passage of Section 504 of the Rehabilitation Act of 1973, debated a comprehensive bill that it enacted two years later. Public Law 94-142, the Education for All Handicapped Children Act of 1975, mandates that all handicapped children be provided with an opportunity to receive a free appropriate public education, no matter how severe their handicap. At the present time the federal government through Public Law 94-142 provides roughly 12 percent of the cost of the special services required for handicapped students.

Public Law 94-142 contains three important mandates. First, the school must provide the least restrictive educational environment for each handicapped child. This requirement has led to "mainstreaming," or the integrating of many handicapped children into regular classrooms. Second, the school must provide each handicapped child with an Individualized Education Program (IEP), developed in consultation with the child's parents. Progress must be assessed periodically in terms of the IEP, and the IEP itself must be reviewed from time to time to keep it in line with the child's progress. Finally, parents or guardians of handicapped children are guaranteed due process rights concerning access to student records, proposed IEP changes, and related matters. At the time of this writing, most state legislatures have brought their statutes into general conformity with federal law, although there is growing interest in reducing certain requirements. Local and state educators argue, for example, that strict federal requirements, such as those involving IEPs, are unwarranted in light of the small share of total funding for the handicapped provided by the national government.

As the 1970s ended, the Carter administration proposed