

PAINFUL PASSAGES

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Working with Children
with Learning Disabilities

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Chapter 1

Definitions and Demography of Learning Disabilities

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Historically, the problem of defining what learning disabilities are has made their diagnosis, treatment, and integration into a single theoretical category very difficult. Although many of the diverse group of subtle neurological impairments now referred to collectively as *learning disabilities* have been recognized and documented since the early 1800s, most research done until the 1920s examined the impact of trauma on the communication skills of previously "normal" adult subjects. It was not until the 1930s that a developmental perspective emerged linking specific disorders in speech, writing, and perception to certain difficulties in learning observed in children (Chalfant, 1987). The inadequacy of such alternative diagnoses as mental retardation or visual impairment was evidenced by the failure of the treatment modalities they entailed. These failures left a residue of problem cases that previous theories of learning—whether psychologically, medically, educationally, or socially based—could not handle.

Defining these cases as resulting from "learning disabilities" required much more than the introduction of a new term; it required a reworking of existing paradigms. The research on trauma-caused communication deficits offered guidance for further work on the role of brain structure in language competence. The research also created a taxonomy of specific behavioral manifestations of learning disabilities. The elevation of the former "problem cases" into the new category of "learning disabilities," however, involved the acceptance of those new manifestations as arising—at least in some cases—from an organic condition, rather than from an environmental disadvantage or a traumatic event.

Emerging interest in learning disorders of children was stimulated by educational reforms addressing the needs of children with mental retardation or hearing deficits. This interest led to the establishment of a variety of professional and lay groups dedicated to furthering understanding of the causes, prevention, and treatment of what now was perceived to be a widespread problem. The Council for Exceptional Children, formed in 1922, is now the largest professional organization in the world focused on research, service, and policy issues to support the education of both handicapped and gifted children. Its 13 special interest groups respond to the specific needs of targeted handicapped groups and of the professional groups represented in the council's membership. Another early organization dedicated to specific written language disabilities was the Orton

Dyslexia Society (ODS), founded in 1949 in recognition of the earlier pioneering work of Samuel T. Orton, a neurologist who studied the role of the structure of the brain in the development of severe reading disabilities in children. Today the ODS focus is on specific reading and written language disabilities and on support of biological, cognitive, and educational research, with a continuing emphasis on brain research.

During the 1950s, many scholarly and professional groups, parents' organizations, and other interested individuals continued to work on differentiating the various handicapping conditions that contribute to the development of learning problems. Despite many differences of perspective, there was growing agreement on the existence of a significant group of children, exhibiting diverse behavioral symptoms but linked by specific patterns of learning difficulties, who could not be included in the well-established categories of the severely brain-injured, deaf, blind, or mentally retarded.

By the early 1960s, efforts to integrate the different perspectives were under way. The growth in acceptance of the umbrella term "learning disabilities" promoted the identification of, and the first steps toward understanding, the problems of a group of children who had fallen through the cracks of existing service programs. Children who today would be identified as having learning disabilities frequently were misidentified as mentally retarded or emotionally disturbed (Levine, 1982; Mercer, 1973). Placed in classes or groups with children with different behavioral characteristics, these children failed to learn, and often adopted behavior that seemed to confirm the faulty diagnosis. Other children whose problems were less severe were seen as slow, and graduated from school only to emerge as functionally illiterate. Other children dropped out or left school as soon as they were legally able to make that choice. In their demands for increased funding for the treatment of learning disabilities, the new advocacy groups also stressed the need for specially trained professionals to work with these children and the importance of research that would yield greater understanding of their learning needs. The major focus of both professional and lay attention continues to be the development of methods to promote academic achievement.

The 1960s also brought the consolidation and redirection of a number of the earlier advocacy organizations. The 1963 Chicago meeting of parents' groups at which the term "learning disabilities" was introduced (by Samuel Kirk) provided the impetus for the establishment of the Association for Children with Learning Disabilities (ACLD) in 1964. This organization, now the Learning Disabilities Association of America, consists of parents, professionals, adults with learning disabilities, and others concerned with children and adults who have "perceptual, conceptual or coordinative problems" (ACLD, 1963, p. 1). The Division for Children with Learning Disabilities, founded in 1968 by a group of educators in the Council for Exceptional Children, split in the early 1980s to become a separate organization for professionals oriented toward the delivery of educational services for children with specific learning disabilities. Reflecting its incorporation of adult

concerns in recognition of the lingering impacts of learning disabilities on adults, the division subsequently changed its name to the Council for Learning Disabilities. Each of these organizations holds a national conference and offers newsletters, periodicals, and occasional publications to local and national members. Although the groups do not agree on the definitions and parameters of learning disabilities, each group has played a major role in the growth in—and recognition of the need for—national and local legislative support, educational resources, and many other services for children, adults, and their families.

The historical focus on educational remediation and the accompanying lack of emphasis on the psychosocial needs of children and their families have contributed to the poor integration of the social work profession into the area of learning disabilities and to a sparse representation of social workers in these organizations. Until recently, learning-disabled children's social and emotional problems and needs have been presented most forcefully by psychologists and psychiatrists.

The emphasis on diagnostic tests and personality inventories in schools has integrated the educational psychologist into the educational service setting, and orientation toward psychopathology and psychoanalytic perspectives has involved the psychiatric profession. The biopsychosocial perspective offered by the social work profession brings a much-needed broader view. Assessment and intervention that focus on changes in the child, as well as changes in family, school, and community systems, will emphasize meeting the child's normal growth and developmental needs. Specific social and emotional needs of both the child and his or her family must be identified.

Social work practitioners and planners must create opportunities to share their perspectives with other professionals. To build the important bridges to other disciplines, social workers need to be more active in interdisciplinary activities held by leading advocacy organizations for learning-disabled persons.

LEGISLATIVE CONTRIBUTIONS TO DEFINITIONAL CLARITY

From the mid-1960s through the mid-1970s, state and federal legislation began to address the rights of all persons with disabilities to education. Work on the major piece of enabling legislation that revolutionized federal involvement in education for children with disabilities was begun in 1974. The Education for All Handicapped Children Act of 1975 (P.L. 94-142) (EHA) established a general definition of *learning disabilities*:

Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding and using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, 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 problems which are primarily the result of visual, hearing or motor handicaps, or mental retardation or of environmental, cultural or economic disadvantage. (EHA, 1975)

In fact, this definition had been developed in 1967 by the National Advisory Committee on Handicapped Children (Lynn, 1979). The category of *learning disabilities* is defined to include deficits in visual, spatial, auditory, and motor functioning that create a discrepancy between general ability and documented achievement. Note, however, that despite the existence of a variety of instruments to assess ability and achievement, there is no consensus regarding what approach should be used to quantify the gap between the two (McLaughlin & Lewis, 1986). Also, although different handicapping conditions may present similar behavioral manifestations, the legislation is an attempt to restrict the category to more severe underlying dysfunctions that are the primary causes of the learning problems.

The EHA definition continues to confound professionals, who are attempting to develop research, assessment, and intervention strategies in response to its vague parameters. Chalfant (1987) noted that "the behavioral symptoms of specific learning disabilities might also arise from visual or hearing impairments, mental retardation, emotional disturbance, social maladjustment, health problems, cultural differences, family problems or poor instruction" (p. 924). For example, a 5-year-old adopted child from another culture showed signs of functional problems in a number of areas in kindergarten. Because of the difference in cultural background and the child's limited facility in English, it was difficult for teachers to determine the extent to which his difficulties reflected cultural dislocation, social adjustment, or a specific learning disability. For 3 years, teachers saw cultural dislocation and difficulties in social adjustment as the primary problems affecting the child's learning. Only when he reached second grade was a specific learning disability identified by an educational evaluation. The ambiguities in the diagnosis of learning disabilities have led to both overdiagnosis and underdiagnosis, wasting valuable time for children whose learning disabilities, whatever their source, have placed them at high risk for educational failure.

EHA included both the first federally sponsored definition of learning disabilities and a mandate for its use within schools across the country. Dislocation and upset were inevitable. Change within systems—especially such massive institutions as the educational and service organizations affected by the legislation—is never tranquil, and this change provoked many levels of controversy. Boundaries between existing categories of handicapping conditions were redefined, and new groups of children suddenly were identified as having handicapping conditions. Disciplinary and professional turfs and areas of expertise underwent parallel changes in response to the new pupil categories.

The vague parameters for learning disabilities established in the legislation and the operational difficulties that emerged elicited a flood of criticism. Both in practice and in policy-making areas, deficiencies in the definition became apparent almost immediately. In particular, the wording of the definition implied that

learning disability reflected a homogeneous condition. However, the fact that no single salient feature, no single syndrome of dysfunction or behavior characteristic, unites all learning-disabled children has led to continued questioning of the EHA definition in professional and lay circles. The seemingly endless discussion of the definition encompasses pragmatic, fiscal, and service issues, as well as the more theoretical concerns expressed by researchers.

On the theoretical front, some of the most recent and vocal questioning of the federal definition has come from Gerald Coles (1988), a clinical psychologist. Addressing the problems associated with the use of the term "learning disabilities" through an analysis of relevant research, Coles concluded that the emergence of learning disabilities as a field is not the result of a "scientific breakthrough" (p. 189). According to Coles, among children formally designated as having learning disabilities there are very few children with minimal neurological dysfunction, and there are significantly more for whom other risk factors are more salient. Concerned professionals and lay persons, he argued, should put more energy toward "addressing, challenging and trying to change the systemic conditions that are the wellsprings of learning failure" (p. 212).

Coles (1988) described learning disabilities as a fabrication of middle-class families meant to focus attention on special learning needs of their children without having to label them mentally retarded or emotionally disturbed. He asserted that the growth in popularity of the term has served political, discriminatory, professional, and institutional ends, without particularly benefiting the children in question. Coles mustered ample expert documentation of the difficulties of implementing the legislation's provisions to assist children with learning disabilities. For example, testing and evaluation procedures do not correspond closely to the conceptual definitions of learning disabilities (Ysseldyke, 1983), the technical adequacy of the tests used in decision making is faulty (Ysseldyke et al., 1982), and the classification judgments have proven to be highly variable from school to school and district to district (Epps, Ysseldyke, & Algozzine, 1982; Thurlow, Ysseldyke, & Casey, 1984).

Others have criticized the definition of learning disability as focusing on what it is not, without offering any clarity about what it is. They cite the vagueness of referrals to disorders in psychological processes involved in understanding and using language and the questionable exclusion of children who have learning problems primarily due to other handicaps or environmental, cultural, or economic disadvantage.

Levine questioned the presumption of defining a true learning disability as having a purity of diagnosis (Levine, Brooks, & Shonkoff, 1980, p. 2). Levine (1987) considered the uniqueness and endless variation of children's learning styles, and provided a continuum along which to assess the unique developmental patterns of the individual. He offered the following progression: "a variation in development need not be a dysfunction; a dysfunction need not create disability; and a disability may never become a handicap" (p. 3). Levine's (1987) sequence

makes it clear that the extent to which social structures and the child's immediate environment facilitate specific overcoming or bypassing strategies is a major determinant in the progression from variation to disability to handicap. (Social structures also play a strong role in defining the tasks constituting developmental milestones or progress, of course; different cultures value different achievements.) Levine (1987) explicitly disavowed umbrella categories and labels, such as "learning disabilities."

Levine probably would agree with Coles (1988) that a narrow and exclusive focus on a biologically based description of learning problems under the label of learning disabilities impedes the exploration of a wider source of influential factors. As a result, society narrows the acceptable strategies for intervention, places artificial limits on service design, and fails to examine the quality of opportunities available, permitting an inevitably inequitable distribution of resources.

Despite significant difficulties with its application, the EHA definition has not been modified significantly. The definition still is used by each state government to determine the types of services to be provided to different categories of students. Parents, educators, evaluators, researchers, social workers, and administrators must continue to use the definition, while struggling with the implications of opposing views. Still, the imposition of a single, federal definition of learning disabilities has had some positive outcomes. The EHA definition does reflect current political and economic realities of attention, funding, and the allocation of professional resources. It serves as a focus for advocacy by providing specific identification parameters for a previously ill-defined population, as well as enhanced visibility for a wide set of problems. Greater visibility and the resulting heightened perceptions of need lead, in turn, to greater public attention to the diversity of learning problems and disorders, and also provide both motivation and guidelines for professional involvement. Definitional clarity—even an illusory clarity—is particularly crucial to the struggle for financial support, providing a rallying point in the competition with well-established categories of need for funding at federal, state, and local levels.

Although the current federally imposed definition has had some positive effects for the various groups concerned with learning disabilities, it is essential to remember that these groups have purposes and goals that are inherently—and appropriately—divergent. The search for a single definition that would meet the needs of researchers, theorists, practitioners, and evaluations may be futile. According to Keogh (1987), the confusion in the field of learning disabilities that has led some critics to refer to learning disabilities as a nonexistent phenomenon arises from the failure to distinguish a conceptual definition from an operational definition. She proposed that professional and lay groups alike adopt and use more narrowly worded definitions, based on their specific purposes and tasks. As an example, Keogh noted that school systems have one kind of operational definition to conform to their bureaucratic, economic, political, altruistic, and self-serving

needs. Researchers, however, should have a distinct operational definition that is tailored to criteria such as validity, reliability, and transferability of outcomes.

Unfortunately, improved definitional clarity at the level of the individual discipline or group has the paradoxical result of greater confusion in the broader area of policy-making. Research, assessment, intervention, and outcomes are studied under distinct operational definitions. In contrast, policy decisions must be based on generalizations. Difficulties are inevitable when integrating fundamentally incompatible data. Even the preliminary step of identifying the target group for a study of learning disabilities is fraught with danger. Some studies have used children identified by the local school evaluation team, and others have performed their own selection process. Tests used may be interpreted in different ways, depending on the goals and skills of the researcher. Variables seen as important and screened in by one researcher will be eliminated by another. The development of a sound knowledge base has been, and continues to be, exceedingly difficult under these circumstances.

In 1981, the National Joint Council for Learning Disabilities (NJCLD) responded to the criticism of earlier definitions by providing a new one:

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. [Italics added] (Hammill, Leigh, McNutt, & Larsen, 1981, p. 331)

The italicized portions of the definition highlight the additional stress placed on the heterogeneity of conditions, the flat assertion that they are intrinsic (based in the individual), and the acknowledged presumption that there is a neurological base for the conditions listed in the definition.

The federal Interagency Committee on Learning Disabilities (ICLD) (1987) was mandated by Section 9 of the Health Research Extension Act of 1985 (P.L. 99-158) to review and assess federal research priorities, activities, and findings regarding learning disabilities (including central nervous system dysfunction in children). In 1987, ICLD proposed three significant additions to the NJCLD definition: (1) social skills were newly identified as subject to specific learning disability, (2) a noncausal relationship between hyperactivity/attention deficit disorder and learning disability was posited, and (3) the presumed relationship of other handicapping conditions to learning disabilities was specified in greater detail. The ICLD goal was to establish a definition that could be used with equal effectiveness as a basis for research, diagnosis, administration, and legislation,

obviating the need for separate, competing definitions. The following definition was proposed:

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. [Italics added] (Kavanagh & Truss, 1988, pp. 550-551)

All ICLD members, except the U.S. Department of Education (DOE), accepted the 1987 modifications. DOE officials rejected the new definition for two reasons (ICLD, 1987). First, the inclusion of social skills in the definition would involve a change in EHA, possibly increasing the number of learning-disabled children legally entitled to special education services. At the time, DOE was involved in a "regular education initiative" aimed at returning children to the regular education classroom whenever possible. Second, the new language left unclear to what degree a learning disability might be the indirect result of other handicapping conditions or socioenvironmental influences. DOE attorneys raised the possibility of conflict with the explicit point that learning disability was intrinsic to the individual (Silver, 1988). This recent effort on a national level illustrates the ongoing search for understanding and a common conceptual base among professional groups working in the area. The struggle for definitional clarity continues to reflect both the unknowns in the field and the realities of fiscal and political constraints.

PROFESSIONAL CONTRIBUTIONS TO DEFINITIONAL CLARITY

Despite the legally mandated and widespread use of the federal definition of learning disabilities, several other terms still are in common use: minimal brain dysfunction syndrome (MBD) or central nervous system dysfunction (CNS), neurological impairment (NI), and dyslexia. Each term has different connotations for professionals and parents. A professional group's choice of nomenclature typically guides its identification of problems, its selection of intervention strategies, and its range of referrals for collateral or supportive services. Frequently, a professional group's terminology reflects beliefs about the location of the dysfunction or problem, such as minimal brain dysfunction or central nervous system dysfunction. Other professions may use terminology emphasizing specific impairments, such as visual perception or expressive language deficit, which imply a specific direction for intervention. A brief review of some of the most frequently

used terms will provide a background for assessing points of disagreement and will facilitate social workers' discussions with families and other professionals about the selection and sequencing of appropriate steps in evaluation and treatment.

Implicit in the terms MBD, CNS, and NI is an emphasis on the functioning of the central nervous system as the locus of a broad range of disorders. These terms highlighting brain and central nervous system involvement should be used with great care. Not all persons with neurological impairments are learning disabled, whereas many (but not all) professionals in the field believe that nearly every individual with a specific learning disability has some neurological impairment resulting in a central nervous system dysfunction (Myers & Hammill, 1982). In the past, members of the medical professions often have been most comfortable with this nomenclature—a terminology that, with its implications of irreparable brain injury or damage, has left a legacy of fear, stigma, and confusion among parents. Many parents have assumed that such terms were just other ways of saying that their child was mentally retarded and faced definite limits to potential achievement. Tragically, parents' lowered expectations and professionals' selection of less demanding remedial strategies often have resulted in self-fulfilling prophecies about the child. *Dyslexia*, one of the first descriptive labels, refers to the manifestation of a primary reading disorder based on central nervous system dysfunction. Much of the research on learning disabilities has focused on the specific problem of reading disability (ICLD, 1987), with recent research emphasizing visual information processing and verbal processing of language. As the complexities of dyslexia become better understood, the term is being applied to a broad range of writing, reading, and speaking disorders, which may be influenced themselves by widely differing auditory, visual, or sequencing dysfunctions. Many other terms pinpointing specific difficulties with word recognition, word memory, spelling, calculating, and so forth, have begun to be used by educators as testing methodologies have been developed to isolate different areas of academic weakness. These terms generally lead to specific therapeutic interventions that might be prescribed: for example, *receptive language problems* suggests need for a language therapist; *visual perceptual problems*, developmental optometry; *motor skill deficits*, sensory motor integration therapy (Lynn, 1979).

However, the lay community still associates dyslexia with letter and word reversals, even though this is only one possible manifestation of the problem. To the general public, dyslexia connotes a contained and remediable problem, without the accompanying emotional, behavioral, or social components that recently have been associated with the term "learning disabilities." Parents often prefer the term "dyslexia" because the word "disability" is absent. The widely publicized identification of such well-known figures as Winston Churchill and Nelson Rockefeller as dyslexic has popularized the term and has even fostered an association between dyslexia and creative accomplishment in adult life. The term occasionally has carried socioeconomic overtones, as some of the earlier expensive private special schools were established for "dyslexic" children.

Although the term "learning disabilities" avoids the stigma of explicit reference to brain damage, operationally it may have other stigmatizing effects. The legal definition is used in a variety of ways in public school systems. Some of the children to whom it is applied have genuine specific learning dysfunctions that constitute disabilities; others may not, but may be seen as too divergent from the classroom norm in terms of emotionally volatile behavior or pace of learning. Such divergences may be related to cultural, racial, class, or experiential background and have nothing to do with specific learning disabilities. Labels also may be inappropriately affixed to reduce class size, to lessen the need for individualized instruction in the regular classroom, or, by excluding less advanced readers from the statistical pool, to promote higher class reading scores. All children so labeled—whether correctly or not—represent an increasingly large population in the public school system, a population that is both very diverse and poorly served.

In return for the presumed advantages of smaller classes and remedial attention, children identified as having specific learning disabilities must accept the status—and the stigma—inherent in the "special education" classification. The trade is not necessarily a fair one. As has been shown repeatedly, the adoption of the classification of learning disability does not automatically bring improvements to a child's learning situation. Despite legislative mandates, many children fall farther and farther behind, receiving both poor instruction and limited monitoring of their progress. Relatively few children gain the skills they need to move back into regular education (Gartner & Lipsky, 1987).

The implications of labeling in the educational system have led to a series of position statements from professional groups, lay organizations, and governmental agencies. Concerned by the ever-increasing number of children receiving special education outside regular classrooms, Madeleine Will (1986), assistant secretary of the DOE Office of Special Education and Rehabilitative Services, discussed the concept of "shared responsibility." She stated that "building level administrators must be empowered to assemble appropriate professional and other resources for delivering effective, coordinated, comprehensive services for all students, based on individual educational needs rather than eligibility for special programs" (p. 413). Will's (1986) statement stressed the governmental commitment to the rights of children with learning disabilities to education established under P.L. 94-142, but underlined the goal of educating learning-disabled children in the regular education classroom. This "regular education initiative" has drawn equal numbers of supporters and detractors. The National Association of Social Workers, together with the National Association of School Psychologists and the Coalition of Advocates for Students, has adopted a "rights without labels" position statement supporting a student's right to obtain services in school without being labeled or removed from the regular education programs. The focus is on prereferral screening and intervention in the regular classroom by both regular and special education staff.

The concept underlying rights without labels is appealing on many levels, because the stigmatization involved in labeling the student is avoided without the concomitant loss of specially trained staff. The effect of the ongoing debate over the quality of *regular* education on education for children with special needs cannot be ignored, however. Professional groups have noted a possible erosion of legislative protection and special services for students with mild to severe learning disabilities (Lerner, 1987). Parents, regular educators, or advocacy groups have not been vocal in support of these protections and services. The abandonment of compensatory strategies to correct for past discrimination, changes in fiscal support structures, the lack of specially trained teachers, and the blurring of the rights of children with handicaps are just a few of the fears being voiced by opponents of the proposed change (McKinney & Hocutt, 1988).

Social workers outside the school system who work with children with learning disabilities and their families usually are responding to a family's concerns about the behavior or emotional state of their child. Rather than using a special education label, these social workers are likely to use a labeling system for mental disorders established by the American Psychiatric Association (1987) *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R). Since the first edition (1952), DSM authors have sought continually to refine and clarify diagnostic categories amid continuing controversy (Kutchins & Kirk, 1988). Developmental disorders and learning disabilities were not included in DSM until 1980, which spurred debate on whether children diagnosed with these problems would be stigmatized as having a mental disorder (Rutter & Shaffer, 1980). This DSM-III edition (APA, 1980) presented core symptoms and subsets of additional symptoms, and identified a range of other factors to be considered (such as duration of the problems, age of onset, course, predisposing factors, and requirements for a differential diagnosis). Other 1980 innovations reflected a move away from a psychoanalytic perspective toward a theoretical approach that focused on identification of symptoms rather than causes. A revised DSM-III (DSM-III-R) (APA, 1987) was published amid increasing controversy, and questions about reliability studies and the basis for the changes it embodied have been raised (Kutchins & Kirk, 1988). Categorizations again are more specific, based on the primary symptoms manifested by children. There is a basic division between physical versus sensory impairments (such as visual or hearing limitations), and behavioral or emotional pathology (such as conduct or cognitive disorders). DSM-III-R categories focus on the psychological characteristics and impacts of the specific disorders or adaptive behaviors associated with them, without stressing their educational implications (Unruh, 1987).

The experience of having a learning disability has been found to play a major—and lifelong—role in an individual's organization of experience and overall development. With its focus on single dimensions, the classification system approach of DSM may not be helpful to a holistic conceptualization of the issues facing children and their families. Finally, there is the still-unresolved question of

whether the DSM classification carries with it the automatic implication of mental disorder and accompanying stigma.

The most recent contribution to the terminological debate is the suggestion that the term "learning disabilities" be abandoned in favor of the phrase "learning differences," to avoid the connotation of disability, while stressing institutional responses that focus on individualized intervention strategies. The key disagreement over use of the term concerns whether or not "differences" lessens the idea of need and will lead to a reduction in the resources necessary to deal with special problems. There is fear that protective legislation may be abandoned, and that rights and entitlements associated with "disability" will be lost (Brown, 1989).

IMPLICATIONS FOR FAMILIES AND CHILDREN

Each term precipitates a reaction from professionals and parents. The social worker cannot function effectively without an awareness of how learning disorders have been identified for parents and their children, and of the different connotations these terms may carry. Clues to such latent meanings (which may vary by region, class, cultural and ethnic background, and past history of the use of the term for members of a particular sociocultural group) should emerge from discussion with families regarding what terms they have heard, what their extended family and friends have said, and how the child's problems are referred to and defined colloquially. This discussion also will help to clarify the level of support and the expectations and attitudes in the child's home and community environment. Finally, it is essential to determine the family's level of knowledge about the disabling condition, familial biases and stereotypes, family definitions of the role of academic success in negotiating the adult world, and the reality of service availability with and without potentially stigmatizing labeling. This clarification of values helps the family and the social worker to develop a cooperative relationship, to ensure that the psychosocial and educational needs of the child will be addressed.

Social workers should cover the following six areas in exploring labels and terminology with children with learning disabilities and their families:

1. Help parents clarify their understanding of the labels that have been applied to their child. Misconceptions and fears often overwhelm reasoned thinking and selection of appropriate next steps. For example, parents' fears that a child may be mentally retarded may have been reinforced by daily experiences in which the child is labeled as stupid. Clear definitions must be developed.
2. Correct children's misperceptions of themselves, and help them develop their own definition of their learning disability.
3. Analyze the extent to which the label(s) used by parents reflect appropriate understanding of the issues confronting them and their children. For example, a term may reveal denial, overreadiness to assume the worst prognosis, or confusion with mental retardation.

4. Educate parents about the different definitions of learning disabilities and the controversies surrounding them. This begins the demystification process and introduces the different professional perspectives, while acknowledging the current gaps in knowledge about this complex set of conditions.

5. Help parents perceive the specific description of their child's strengths and weaknesses as not only legitimate but preferable to nondescriptive labels and categories. Any legal or service definition applied to their child always must include the individualized description.

6. Help parents understand current, relevant legislative issues, so that they can become affiliated with appropriate groups. Changes in legal definitions may have direct repercussions—good or bad—on services and resources for children in their schools and communities. Empowering parents to see their roles as multidimensional, linking the struggle for appropriate services for their own child with ways to support the needs of others, is part of the social worker's task.

The definition of learning disabilities encompasses many configurations of dysfunctional developmental variations. The politicization of the process of defining learning disabilities will continue to affect both the children who live with these disabilities and their families. Simultaneously, lay and professional groups are struggling with revised definitions of the problem and its parameters, which will have significant implications for service access and continuity. Social workers must recognize that, at the many junctures where professional, political, economic, and parental perspectives may clash, the needs of the child must take precedence. Those needs must be kept clearly in view in all deliberations aimed at improving a given group's access to available resources.

DEMOGRAPHY OF LEARNING DISABILITIES

Not surprisingly, given the absence of definitional unanimity, the basic issue of determining the extent of learning disabilities among children on a national basis has plagued professionals and confounded planning for resources at all levels of public and private services. According to the literature, the prevalence of learning disabilities (based on the number of people with the condition relative to the general population at a specified point in time) has varied from 2 percent to more than 20 percent of the total population (Broman, Bien, & Shaughnessy, 1985). In 1987, between 5 and 10 percent of the total population—from 12 to 24 million persons—was viewed as a reasonable estimate (ICLD, 1987). Referring to the number and characteristics of persons affected by learning disabilities, the ICLD report to Congress (1987) noted that "Prevalence may vary when (1) different case definitions of the condition are used, (2) different populations are studied, or (3) studies are done at different ages or different points in time" (p. 107). It is clear that the study of learning disabilities is characterized by all three inconsistencies from the wide variation in asserted prevalence rates.

Most cases of learning disability are identified through measures of discrepancy in performance. However, there are numerous choices involved in the process of measuring discrepancy between ability and achievement, and these choices affect the number of children with educational differences who will be found to be learning disabled. Because all humans exhibit variable patterns of strength and weakness, the more functional areas that are included in an initial screening, the greater the number of persons who are likely to be identified as having learning disabilities. For example, the ICLD report (1987) pointed out that if listening, speaking, reading, writing, reasoning, mathematical, and social skills all were tested, a higher prevalence of learning disabilities in a given population would emerge than if only reading skills were tested. The second step in the identification process is the application of more specific measures to exclude children who were screened in by the more sweeping functional measures. Currently, there are no standard criteria for the selection of measures, either for inclusion or for exclusion.

Considerable controversy also surrounds the various procedures used to determine the level of discrepancy, and whether or not each one provides a valid basis for measurement. Commonly used measures include the number of years below grade level at which a child is functioning; expectancy formulas based both on age and on mental age; and techniques involving standard scores and regression analyses (McLaughlin & Lewis, 1986; Cone & Wilson, 1981). The inherent arbitrariness of measures involving cutoff points is clear. For example, defining as learning disabled all children whose test scores for a given skill (such as reading or arithmetic) fall below 80 percent of the mean score for the general population of children of the same age necessarily would result in higher prevalence rates than a definition setting the cutoff point at 75 percent (ICLD, 1987). Unfortunately, no general agreements have been reached that would standardize these measures. Some states have adopted 80 percent cutoff points, others have used lower percentages, and still others use different approaches altogether. Also, as the definitions of learning disabilities have changed, demographic studies have included and excluded different subsets of populations with learning problems.

Public education identification procedures for learning-disabled children present an equally confusing picture. Part B of EHA requires that data be collected annually regarding the different categories of children receiving special education services. Among the public school age population, the number of children categorized as being affected by learning disabilities has grown exponentially since the enactment of the legislation. In the 1975-76 school year, 1.79 percent of the school enrollment was served as learning disabled (U.S. Department of Education, 1986). In the 1985-86 school year, 4.73 percent of the school enrollment was so served, or 42 percent of all identified and served handicapped children. This figure represents almost 1.9 million children between the ages of 3 and 21 (U.S. Department of Education, 1987). From the 1975-76 school year to the 1984-85 school year, the number of learning-disabled students rose 119

percent, while the total number of students enrolled in special education increased by only 16 percent (Gartner & Lipsky, 1987).

The largest proportion of increase was in the 3- to 5-year-old and 18- to 21-year-old groups. All other categories of handicapping conditions showed a decrease in absolute numbers during this period, particularly the category of the mentally retarded. Referring to this as the result of "classification plea bargaining," Gartner and Lipsky (1987, p. 373) observed that parents prefer the learning-disabled label to that of mental retardation. In addition, local school districts can establish their own inclusionary and exclusionary cutoff criteria for classification, further confounding the goal of achieving a count based on uniform national standards. As Gartner and Lipsky noted, prevalence data and classifications become suspect when some states have large learning-disabled populations and very few mentally retarded students, while other states have very few learning-disabled, and many mentally retarded, students.

Most children counted as having learning disabilities are in regular classrooms (77.27 percent in 1984-85), 21.21 percent are in separate classes, 1.33 percent are in separate schools, and 0.18 percent are in other environments. When analyzed by age group, the 3- to 5-year-olds tend to be served in more restrictive settings—those providing more supportive services—than 6- to 17-year-olds. This pattern might reflect the availability of fewer regular education programs (Gartner & Lipsky, 1987). These statistics do not tell the whole story, however. Another group of students is able to compensate for their learning problems in schools that are flexible enough to tolerate their pace and style. These students remain in regular educational classes and are not evaluated or counted, even though they may have learning profiles similar to those of children in special education (ICLD, 1987).

An additional group of children who are not counted among the handicapped includes those whose abilities are in the superior range but whose performance is only average for their age and grade level. These children may function at grade level because they have developed good compensatory skills and put in the time necessary to produce adequate work—if they were to receive special remedial help in the areas of their deficits, however, they would be able to perform at a level commensurate with their abilities. Considerable controversy surrounds the identification of such students as among those entitled to receive the supportive services enumerated by EHA. These students' performances meet general age and classroom standards, so by conventional standards they are ineligible. Only if measures of discrepancy focusing on developing these children's optimal ability and performance are used do their needs become undeniable.

Although gifted children may represent a very small fraction of the total numbers of learning disabled, they are a group whose true abilities go unrecognized and whose education is meeting their needs only minimally. The frustration, the possibility of chronic high stress levels, and the development and reinforcement of maladaptive coping strategies due to neglect of their needs have not been

addressed (Jones, 1986). The loss to society caused by this group's inappropriate education has not been given sufficient attention.

VARIABLES INFLUENCING LEARNING DISABILITIES DEMOGRAPHY

The overrepresentation of culturally diverse students and those of low socioeconomic background in special education classes (Brosnan, 1983; Tucker, 1980; Argulewicz, 1983), specifically in classes for learning disabilities, is a statistical fact. The overriding definitional problems make it risky to explore the variables that influence the demography. Any consideration of apparent causal factors must allow for the possibility that some of the variables may represent a complex mix of influences and associations.

A number of health and environmental variables have been identified as influences on the prevalence of learning disabilities in the population. One of the most striking associations is that existing between learning disabilities and children's health factors correlated with low socioeconomic backgrounds. Even if children from these backgrounds are overrepresented in special education classes, they are a group vulnerable to numerous high-risk factors in their immediate living environment. Children from low socioeconomic circumstances are especially vulnerable to low birthweights, high blood lead levels, lasting hearing impairments, and congenital infections. The developmental impacts of these conditions have been associated with behavioral or learning difficulties (Alberman, 1973; Schorr, 1983). A second, striking association involves gender—studies showed a frequency of learning disabilities that was three to five times higher among males than among females (Broman et al., 1985), which may support McEwen's (1983) finding that the development of the cerebral hemispheres appears to be vulnerable to differential effects of sex hormones.

Genetic factors are believed to represent a multifactorial predisposition to learning disabilities (Pennington & Smith, 1983). A variety of different chromosomal patterns are currently under investigation. Finucci, Guthrie, Childs, Abbey, and Childs (1976) and Finucci, Isaacs, Whitehouse, and Childs (1983) found that a high number of first-degree relatives of learning-disabled children also had some specific reading disabilities. However, no single genetic link was involved. Another recent study revealed that parents who reported having reading difficulties were significantly more likely to have children with reading problems (Volger, DeFries, & Decker, 1984). Similar patterns of reading problems have been found between siblings. Some genetic disorders are known to impair development and academic ability and behavior if not treated, such as phenylketonuria (PKU) (Holtzman, Kronmal, van Doorninck, Azen, & Koch, 1976; Levine, 1987). Extensive research has been devoted to the linkage between developmental lags and chromosome irregularities. Distinct chromosomal patterns have been linked to

difficulties in visual-spatial perception, specific language development, and conceptual faculties (Levine, 1987).

An increasing amount of research documents associations between various factors suspected of causing learning disorders. Advances in understanding the complex mechanisms underlying central nervous system development have led to exploration in medical, environmental, and nutritional areas. Although studies in these areas usually are discussed in the context of the search for causes, the studies also can be considered in terms of their demographic implications. Most of the studies involved small, fairly discrete populations, which raises serious questions about whether findings can be generalized. Also, most of these studies only identify high-risk factors. It is essential to remember that not all children who have the characteristics of those studied will show evidence of impaired learning ability.

Prenatal Risk Factors

Studies of congenital sources of learning impairment have focused on the complex interrelationship among the developing brain, hormones, mood, and environment of the fetus. A number of prenatal maternal infections, such as rubella and toxoplasmosis (Desmond et al., 1978; Sever, 1982); illnesses, such as high blood pressure, kidney disease, and toxemia; metabolic disorders, such as diabetes; addictive drugs; prescription drugs (Nichols & Chen, 1981); alcohol (Hesselbrock, Stabenau, & Hesselbrock, 1985); x-rays early in pregnancy; smoking; and environmental toxins, particularly lead (McMichael et al., 1988) are known to affect the fragile central nervous system of the embryo or fetus, and to affect nutritional status and growth. All of these factors are thought to give rise to a continuum of effects that can range from miscarriage, through retardation or subtle neurological dysfunctions, to no effect at all. Of all these areas, the role of alcohol and the impact of different degrees of alcoholism in the mother have received the most intense scrutiny (Shaywitz, Cohen, & Shaywitz, 1980; Dorris, 1989). Increasingly, definitive research is showing that causal connections can be established.

There also is increasing evidence that the mother's use of drugs other than alcohol has a direct influence on the unborn child's growth and development (Brody, 1988). For example, research is now showing that even brief use of cocaine by a pregnant woman may cause subtle impairments in the development of the nervous system in a fetus. Infants born to cocaine-using mothers often are premature, and have easily overloaded nervous systems that make them hypersensitive to their environment. Difficulties in the mother-child relationship may ensue, because these babies often cannot be comforted by the usual means, and their incessant crying may elicit increasing parental frustration, even rejection. Subsequent neurological problems, such as learning disabilities and attentional problems, have been observed in these children when they reach school age.

A recent survey of cocaine use by pregnant women in 36 U.S. hospitals found that an average of about 11 percent of women surveyed were exposing their unborn children to drugs. The hospitals studied were in urban, suburban, and rural areas, and patient populations included all income groups. In some hospitals, as many as 27 percent of the mothers surveyed were using illicit drugs (Brody, 1988).

Perinatal and Postnatal Associations

Certain events occurring during the period immediately preceding birth (including labor and delivery) and the period immediately after birth are suspected of directly influencing a child's development. During these periods, the stage is set for future developmental problems by an injury or other obstetrical trauma to a normally developed fetus. This can result from poor professional service (Friedman, Sachleben, & Wallace, 1979) or from unexpected complications, such as breech delivery with delay in delivery of the head (Muller et al., 1971). Most of these problems are associated with interference to the fetal or maternal respiratory or circulation systems, resulting in physical damage to the fetal nervous system and a lack of oxygen to the fetal brain (Tobel & Lambert, 1981).

The influences of the larger environment are more difficult to assess. Children born in poverty are more vulnerable than others to the impact of deficient prenatal care and any perinatal risks (Breitmayer & Ramey, 1986). Lack of community health resources, poor nutrition, and emotional stress, such as that suffered by an abused or neglected teenager who becomes pregnant, may all be factors contributing to the low health status of both mother and fetus. Existing vulnerabilities in the growing child may be exacerbated, or new ones created. For example, when the variables of prematurity and low birthweight are considered (Drillien, Thomson, & Burgoyne, 1980; Eilers, Desai, Wilson, & Cunningham, 1986), and poor postnatal care is added, the vulnerable child may exhibit various learning dysfunctions. The additional variables of low socioeconomic and demographic status appear more closely linked to the appearance of learning disabilities in some longitudinal studies (Werner, Bierman, & French, 1971).

Many health-related risk factors of early childhood have been correlated with learning disabilities because of their frequent associations with children's learning problems. Examples are infections of the central nervous system, such as meningitis, and frequent infections affecting hearing over long periods of time, such as otitis media (Kavanagh, 1986). Environmental pollutants and toxins of all kinds, from cigarette smoke to insecticides and mercury, also are beginning to receive serious attention. Studies of the effects of lead poisoning show a direct relationship between high tooth-lead levels and signs of attention deficits and processing problems (McMichael et al., 1988). Anemia and iron deficiency also have been identified as possible factors affecting behavior and attention. Malnutrition at early

ages has been seen to have an impact on language skills, behavior, and attention span. Food additives, carbohydrates, low blood sugar, and allergies all have been tentatively linked to hyperactivity and concentration problems. However, systematic review of existing research has concluded that, although these factors may be relevant for some small groups of children, the numbers are nowhere as high as those who suggest a causal linkage claim (Levine, 1987).

The role of abuse and neglect in the emergence of developmental disabilities was reviewed by Snyder, Hampton, and Newberger (1983). For many children, abuse in the home is a fairly frequent and predictable event (Straus, Gelles, & Steinmetz, 1980). Abuse can range from shaking, which may cause subdural hematomas in infants (Caffey, 1972), to severe battering, which causes serious internal injuries. Disturbed adult-child relationships may have been triggered by preexisting neurological impairment in the child (Friedrich & Boniskin, 1976), such as the frustrating behavior and responses related to prematurity (Hunter, Kilstrom, Kraybill, & Loda, 1978). In other situations the violence or neglect may have injured a child with a previously intact central nervous system. Negative effects of abuse on the child's development and growth range from language delay (Newberger & McAnulty, 1976), through cognitive deficits and motor dysfunctions (Kempe, 1987; Solomons, 1979), to the most extreme physical damage to the body (Snyder et al., 1983). Families at all income levels abuse and neglect their children. However, in poor and minority families the results of abuse are more likely to be reported as abuse than in middle-class families, where a report of accidental injury (Gelles, 1975) is more likely. The socioeconomic stresses of unemployment, poor housing, large family size, and lack of access to child care are correlated both with abuse or neglect and with poverty.

Group studies of children with head injuries, particularly those in which the child was unconscious for a long time, have shown a frequent association between such injuries and problems in school that have many of the characteristics of learning disabilities. However, as with other health risks, other variables must be considered. There may have been preexisting neurological vulnerabilities (Levine, 1987). There also is a statistical likelihood that children who have had severe head trauma also have suffered other, environmentally related, deprivations affecting their learning (Rutter, Chadwick, & Shaffer, 1983).

Many variables have been identified tentatively as influences on the learning patterns of children. However, the small size of most of the studies, the variability in the sample definition and the measurements used to determine the presence of learning disabilities, and the frequent clustering of high-risk variables make it difficult to establish actual causal linkages. Nevertheless, even tentative associations may be useful in understanding certain recurring patterns of prevalence of learning disabilities. Although clear causal relationships between a child's environment and learning disabilities have not been proven, the interaction between biological predisposition and environmental high-risk configurations of child and family temperaments is indisputable. Children from certain biological, familial,

and community situations—often those associated with low socioeconomic backgrounds—are profoundly vulnerable.

This discussion of the demography of learning disabilities has focused on children, identifying environmental influences and high-risk situations that can be altered. Although most studies of the prevalence of learning disabilities and of predisposing factors have involved preadolescent populations, the adult population should not be neglected. Follow-up studies of learning-disabled children show that, as adolescents and young adults, many members of this population appear to have continued problems in independent functioning (Gittelman, Mannuzza, & Shenker, 1985). Some adolescents and adults with learning disabilities suffer hyperactivity and attention deficits; others have deficits in perceptual or communication skills (Rawson, 1977; Weiss, Hechtman, & Perlman, 1978). An increasing number of longitudinal studies show that learning-disabled adolescents are at high risk for early school dropout, drug abuse, and juvenile delinquency (Dunivant, 1982; Murray, 1976). Adults with learning disabilities who have acquired maladaptive coping strategies continue to be at risk to themselves and others. Adults also may suffer marital instability, chronic unemployment, and psychiatric disorders. Accordingly, the emphasis here on the demography from birth through elementary school age should not obscure the fact that there are identifiable groups of learning-disabled persons in all age brackets. These groups also must be considered in any assessment of the prevalence of learning disabilities.

IMPLICATIONS FOR SOCIAL WORK INTERVENTION

Despite the problems of identifying and measuring learning disabilities, the demography of these disabilities provides some direction for social work intervention. The diversity of associations among prenatal, perinatal, and postnatal risk factors and conditions that affect normal developmental processes indicate a necessity for early social work intervention during pregnancy and for follow-up work with families and children after hospital discharge. Many of the factors are simply predispositions and high-risk factors, rather than causal links leading inevitably to learning dysfunctions. Socioeconomic status and high-quality postnatal care may help to overcome the negative effects of birth complications (Werner & Smith, 1982; Sameroff, 1979). Early intervention is critical in preventing unnecessary associative emotional and social problems. Even if the social work intervention cannot be timed for maximum prevention, improving nutritional and environmental factors may reduce or mitigate negative influences.

Practitioners should work with children and their parents to eliminate as many risk factors as possible. Even without a diagnosis of learning disabilities, social workers can identify and target early intervention strategies directed at maternal nutrition, health, and behavior during pregnancy. Special parental supports for the low birthweight and premature infant, parenting education for the first-time

parent, and responsive health care monitoring during the preschool years are prerequisites for the healthy growth and development of all children.

The knowledge that, given the same sets of developmental problems, children from low socioeconomic backgrounds already are more vulnerable than others gives social workers clear priorities in developing creative interventions to moderate the influences of home, school, and community inadequacies. Although prevention may not be possible, creating a setting where vulnerable children are not always struggling with an inhospitable environment may make some of the unavoidable developmental variation less of a threat.

Early identification of learning disabilities has proven helpful in alleviating some of the disabling consequences of developmental dysfunctions, but does not obviate the need for lifelong support in some cases. Learning disabilities do not end with childhood and are not limited to performance in school—they constitute a "life disability" (Silver, 1979, p. 606). Because learning disabilities affect all aspects of daily life, a holistic viewpoint is essential in planning services and structuring intervention for a child. Also, despite the critical importance for society and for individuals of early intervention, the increasingly visible populations of adolescents and adults with learning disabilities cannot be ignored or left unserved. The problems these individuals pose for their families and for society are undeniable on the policy-making level. The distress these people encounter as adults—competition in the workplace, underemployment, social isolation—must be met with compassionate help.

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Chapter 2

Nature of Learning Disabilities

Ysseldyke, J. E. (1983). Current practices in making psychoeducational decisions about learning disabled students (Introduction). *Journal of Learning Disabilities*, 16, 226-233.

Ysseldyke, J. E., Thurlow, M. L., Graden, J. L., Wesson, C., Deno, S. L., & Algozzine, B. (1982). *Generalizations from five years of research on assessment and decision-making* (Research Report No. 100). Minneapolis: University of Minnesota, Institute for Research on Learning Disabilities.

Recently, a proliferation of books on learning disabilities has been selling to general, rather than special interest, audiences, demonstrating the public interest in learning disabilities and providing evidence of the highly charged atmosphere in which professionals and parents are making crucial decisions about their children. The book titles indicate the conflict and unresolved issues in the field: *When Children Don't Learn* (McGuinness, 1985), *The Learning Mystique* (Coles, 1987), *The Magic Feather* (Granger & Granger, 1986), *Turnabout Children* (MacCracken, 1986). Current participants in the debate on the nature of learning disabilities range from those who view the term as a pseudoscientific construct intended to protect middle-class children from failure and maintain the existing structure of public education (Coles, 1987; Sigmon, 1987) to those who view learning disabilities as medical problems with neurological (Cruickshank, 1972; Wender, 1971) or neuropsychological (Rothstein, Benjamin, Crosby, & Eisenstadt, 1988) origins. There also are many debate participants whose positions fall somewhere between these extremes.

CHARACTERISTICS AND PATTERNS OF LEARNING DISABILITY

The phenomena associated with learning disabilities (in a pretheoretical use of the term) embrace a wide range of developmental, cognitive, and behavioral problems that are manifested in unique but recognizable patterns. The recognizable patterns of learning disability, the compromising of performance rather than ability, and the startling discrepancies among the skills of the individual child challenge both professionals and parents. Each child is unique. It is only when an individual pace, pattern, or style of performance hinders a child in accomplishing developmental tasks that the child's variant pattern becomes a dysfunctional one. The extent to which a difference becomes a true disability depends on internal factors, such as the child's compensatory strategies and the impact of other developmental dysfunctions, and on external variables, such as the importance of the tasks affected, rigidity of expectations, and available supportive structures (Levine, 1987).

The following discussion of learning-related developmental difficulties adapted from Levine (1987) is organized according to the specific functional areas most relevant to children. Anecdotal examples illustrate the impact of these difficulties on children and on people interacting with them—parents, teachers, social workers, other professionals, and peers. The emphasis here on specific manifestations is not intended to downplay the importance of the environment on development of learning disabilities. Rather, the goal is to provide a general framework for the observation and initial evaluation of variations in functioning. This analytical assessment is a necessary preliminary to understanding a child's functional "fit" with the different environments in which he or she is learning, living, and playing.

PERCEPTUAL FUNCTIONS

Perception, the individual's experience and organization of his or her environment through the five senses (vision, hearing, smell, taste, and touch), has far-reaching psychosocial implications. For example, confidence that one's powers of hearing or sight will deliver accurate information, which then can be further processed and acted on, if necessary, contributes to a feeling of competence and independence. If children cannot trust the information they take in, or cannot organize it to be useful and retrievable, they will feel uncertainty and self-doubt, frequently even in areas of genuine strength. Children need to become aware of their strengths and to have them recognized by important adults. Every opportunity to confirm a strength, and thereby to increase a sense of competence and mastery, benefits a child's self-esteem and helps provide the necessary balance for a realistic view of his or her weaknesses and strengths.

Visual and Spatial Perception

Visual-spatial perception, the ability to orient oneself and other objects or persons in space, and to act on the knowledge of these relationships, is one of the major organizing systems for the immense amounts of information absorbed through the senses. This system is so fundamental to human existence that developmental difficulties may be manifested in problems with academic, social, and leisure time activities, affecting many of the day's tasks, with important consequences for self-esteem and emotional resiliency. Note that, although the eyes are the transmitter or vehicle through which the world is seen, a deficit in visual perception is not a problem with visual acuity or eye-muscle coordination. The simultaneous processing of visual stimuli that underlies visual perception requires a complex interaction of the skills of coordination, attention, recognition, and judgment of distance. Frostig, Maslow, Lefever, and Wirtlesley (1963) developed a series of tests to evaluate visual-spatial abilities. Although the effectiveness of Frostig's tests and training methods have not been documented adequately

(Mann, 1978; Sabatino, 1985), the categories Frostig established provide a useful framework for exploring the proposed functions of visual perception.

As defined by Frostig et al. (1963), *visual-motor coordination* is the ability to coordinate vision with movements of the body or parts of the body. *Figure-ground perception* is the "ability to attend to one aspect of a visual field while perceiving it in relation to the rest of the field" (p. 464). The inability to distinguish a figure or object in the foreground as distinct from the background becomes important when judging distance, because the guideposts by which most children would gauge what is near or far are lost. Later difficulties with driving and gauging distances from other cars may be a result of figure-ground perceptual problems.

Frostig et al. (1963) defined *perception of constancy* as the "ability to recognize that an object has constant properties such as shape, position, size, despite the variability of the impression on the sensory system (shapes, numbers, or objects)" (p. 464). Dysfunctions in this area affect a variety of academic tasks. To read fluently, a child must be able to create and hold visual representations of letters and words. Poor visual discrimination skills and lack of ability to remember visual shapes affect reading fluency, even though these perceptual problems generally are not considered to be the primary cause of reading difficulties. Letter reversals (p-d, g-q, u-n, x-t) may be an indication of a child's perception of the movement of symbols in space—the instability of the symbols makes their orientation ambiguous. Shape-perception difficulties may lead to problems in spelling, math, and all areas requiring accurate perception of symbols distinguished primarily by shape, such as letters and numerals. Problems in the sequencing and organization of visually gathered data, and the consequent difficulty of retaining patterns of symbols, may emerge as spelling problems. Contrary to popular wisdom, research has shown that a synergistic combination of specific verbal deficits of language processing may be more likely to cause reading disability than are the difficulties characterized by reversals (Roswell & Natchez, 1977).

Frostig et al. (1963) described *perception of position in space* as the "awareness of an object's position in relation to the observer" (p. 464) and the perception of spatial relationship (the position of two or more objects in relation to each other). A child who asks the seemingly existential question of "Where does up end and down begin?" may be a precocious philosopher—or may be suffering from a perceptual deficit. Children who have difficulties with their orientation in space often are confused about the relationship between foreground and background, left and right, up and down, and over and under. A child aged 6 to 9, when participation in team sports becomes an important route for self-esteem, can be at a significant disadvantage if this confusion persists. For example, on the soccer field these youngsters may make a goal for the opposing team, suffering both immediate disgrace and the continuing humiliation of being the last one chosen for every future game. In adolescence, they may stand too close to others at a party and wonder why people always seem to be moving away. They may be labeled by children and adults as "spacy," a painful but evocative term, as they may indeed

present themselves as though lost in space. They may have difficulty in reading maps and become disoriented in unfamiliar surroundings with repetitive design and few landmarks, such as school corridors and shopping malls. Other children with spatial deficits may look and act bewildered when they walk into a strange room. To others, their efforts to orient themselves in space often are very apparent, although usually misunderstood.

Spatial orientation, including the perception of one's body in space, is critical to effective motor functioning, or negotiating one's body's movement through space—in everyday terms, to walking through a room without tripping. Repeated accidents with furniture, and the accompanying parental anxiety, may make young children with spatial disorientation problems reluctant to explore their world. Misjudging distances, they may trip over a chair leg, bump someone's elbow, and spill their milk, in what appears to be one single disoriented movement. Such a child frequently leaves anger in his or her wake and may be referred to as naughty, clumsy, accident-prone, or even emotionally disturbed. However, this behavior is not intentional clumsiness, clowning, or a delaying tactic; rather, it is the behavior of a child who cannot perceive the position and depth of other objects in relation to his or her own body; and, because of this, cannot control or coordinate his or her body's movements on the basis of positional data.

Visual *perceptual* and visual *motor* skills are separate but related. A child may be able to take in the correct image or placement of an object in space, but be unable to reproduce the object through drawing or building. Simply perceiving shapes and forms, then copying them, requires different sets of skills—which should be familiar to all who see themselves as nonartistic. But such self-deprecating claims by adults typically are meant to refer only to an extremely narrow range of skills—reproducing, in accordance with cultural norms, an object seen or imagined. For the infant, however, early sensory motor experiences—involving “perceiving and copying” in a much broader sense—are the fundamental building blocks for more advanced mental developmental processes (Piaget & Inhelder, 1969). Although all areas of motor development that are related to perception are important, the study of learning problems has consistently placed special emphasis on visual motor perception.

In a particularly visible example, visual motor perception and discrimination problems have been identified tentatively as causal factors contributing to a child's problems with laterality, including outright failure to establish lateral dominance. Some of these children may use their right hand and their left hand alternately for writing, reaching, or throwing, or may use both when they need only one—or only one hand when both are needed (Kirk & Chalfant, 1984). Another developmental problem in this area is evidenced by a child's failure to reach the level at which the eye “leads” the hand when peers do, making play less skilled. Instead, the child remains at an earlier developmental stage, in which the hand leads the eye. Visual *spatial* perception also is fundamental to the general motor coordination skills used in hand-eye coordination. Using a pencil, playing with toys, building with

blocks—all are early indicators of the child's future success in playing, or competing, with peers and mastering the developmental tasks of childhood.

Hand-eye coordination is a crucial skill for the youngster anxious to be on a neighborhood or school ball team. In many American communities, participation in organized team sports is still the critical determinant of a boy's acceptance by his peer group. A boy whose parents share this norm may suffer even greater loss of self-esteem from the lack of any socially sanctioned and valued arena in which he can excel. The anxious father who tries to force interest and skill on a child who never makes the team instead may be giving him a devastating message—that he will never measure up to his father's standards. Social norms for girls involving demonstrated hand-eye coordination generally have been less narrowly defined, although participation in such socioculturally prescribed activities as school sports, dancing lessons, knitting, sewing, or scouting groups affords ample opportunity for similar loss of self-esteem. Paradoxically, increased opportunities for, and recognition of, female athletes may have a mixed impact on young girls, by broadening the range of role models and activities available to them while narrowing the range of acceptable variation in athletic attainment. Such heightened scrutiny may make it more difficult for girls with marginal visual discrimination deficits or spatial orientation problems to negotiate the hurdles of group activities and to find ways to engage in effective social interaction. For children of both sexes with this type of learning disability, school compulsory sports and physical education activities have long been a source of inescapable failure, public humiliation, and damage to self-esteem.

Children whose initial problems involve visual discrimination sometimes are characterized as socially unobservant. A friend's significant change in hair style or attire may elicit no comment. However, the child's attention to an irrelevant detail may lead peers to wonder what is “wrong” with him or her. For some children, the inability to identify and interpret visual social cues—facial expressions, a hand gesture, or a nod of the head—means that a critical nonverbal signal requiring either a response or some modification of behavior will pass unnoticed. Although they may perceive that someone is winking or staring at them in a peculiar way, these children may not realize that these nonverbal behaviors are meant to convey a message. Their resultant inability to fine-tune their conversational and interactional responses is seen as a lack of sensitivity. As they mature, these children may become more aware that a nonverbal message is being sent, but rather than responding through a parallel nonverbal channel, they may inappropriately confront the sender with an explicit question such as “What's the matter?” and embarrass everyone present. Of course, successful manipulation of nonverbal cues involves much more than visual discrimination skills. It also requires the individual to assume, at least momentarily, the role of the other person, and to identify the behavior that may be seen as objectionable by that other person. Finally, the individual determines what kind of modification is needed (Levine, 1987). Many children and adolescents with learning disabilities lack the powers

of conceptual integration and planning and retrieval necessary to use nonverbal behavioral cues appropriately. Their ineptitude at nonverbal communication—an essential aspect of human interactions of all kinds—tends to set them apart, making both them and their peers uncomfortable. Not surprisingly, the nonverbal oddness that may be sensed by those around them often is found inexplicable or undefinable.

As the example of nonverbal cues suggests, visual-spatial perception problems may play a significant, and often unsuspected, role in the social problems of some children and adolescents. Even when such problems are perceived to be based on past life experiences—such as missed opportunities to acquire and practice social skills and the consequent deepening of social isolation—they are not always identified as being related to a child's visual or spatial deficits.

Researchers now are questioning the role of language processing in deficits in interpretation of nonverbal social cues (Tallal, 1987). The socialization difficulties of children with these problems typically are viewed as emotionally based, or are simply dismissed as an aspect of the children's personalities. The children themselves, often well aware of their difficulty in social situations, also tend to express this difficulty in social or psychological terms—as not being able to make friends, or as always being the object of their peers' ridicule. They may respond by withdrawing from social encounters. Alternatively, they may be bristly, socially aggressive, or always ready to lash out in response to a perceived slight.

Auditory Perception

Auditory perceptual skills are skills involved in the ability to distinguish and recognize sounds and to interpret what is heard. Deficits in any of the auditory areas have profound consequences for receptive language abilities, and predict receptive language impairment. Children with auditory perception problems may have difficulty processing speech and nonspeech sounds, distinguishing between subtle differences in sounds, processing combined sounds, or discriminating between words and sounds without meaning.

The ability to process sounds and integrate the information rapidly is essential for *receptive language skill*, or the ability to understand what is heard. Children with receptive language impairments almost invariably display oral language deficits as well, being hindered in appropriate production of utterances by their decoding/processing deficits.

Difficulty in *auditory discrimination*, or distinguishing among sounds, makes it hard for children to isolate "letter sounds" in words and to capture the sequences of sounds as groups within words. Predictably, spelling and decoding large words become difficult (Levine, 1987). Children's attempts at spelling may be so unsystematic, ill-understood, and remote from the accepted spelling of a word that a dictionary would provide no help at all.

Children with deficits in *auditory attention* or *figure/ground discrimination* are unable to screen out extraneous noises and focus on important sounds. Such

children, displaying what Levine (1987) called auditory distractibility, may pay attention to the noise in the street when a parent is talking to them in the house, and may even respond to a honking car by asking, "What did you say?" When crossing a street, these children may be listening to the laughter of other children up the street instead of to the noise of an approaching car. At home, such children may require absolute quiet when doing homework, which can disrupt the normal late-afternoon activities of other family members. Hidden family resentment may build, particularly when assignments are not completed correctly even in a quiet house. Paradoxically, a predictable background noise may be used to screen out intrusive episodic sounds of the conversations of other household members.

Difficulties in auditory perceptual areas can be a great source of insecurity for a child or an adolescent, with social distancing a common outcome. The inability to make sense of rapid conversational give-and-take among peers or in the classroom may inhibit healthy peer relationships. Some children withdraw from their peers, denying themselves opportunities to use their often lagging social skills; others, recognizing that they fare better if they can control the rate of verbal interchange, tend to initiate and dominate conversation, often angering and alienating their listeners.

Children with receptive language impairments due to an auditory processing deficit generally perform poorly in all aspects of language use. This deficit interferes with spelling and sound reproduction, adding new vocabulary items, understanding what other people say, attending to classroom instruction, taking notes—all vital activities in school. Such children may appear to be of normal ability in spontaneous language production. If they initiate a conversation and keep control of its content and pace with questions or expressions of their own ideas, a listener will have few clues to the existence of a receptive language deficit. In the classroom, such children might be able to answer a question when pupils may volunteer by raising their hands but be unable to respond when the teacher calls on them without warning. Because this kind of classroom interrogation is stressful for most children, the fact that a child has an actual receptive language deficit may not be noted. Adults tend to become impatient when such children repeatedly say "what?" as they stall for time, almost audibly struggling to process information. Peers are more likely to say, "Forget it," and ask someone else, leaving the youngster with receptive language deficits even fewer opportunities to practice the necessary skills of social communication. These children often choose withdrawal, sometimes to TV, sometimes to play with younger children, where verbal demands are slower and simpler and the price for failure to understand is smaller. Although the retreat to younger playmates provides some opportunities to socialize, it does not foster a child's developmental progress.

Expressive Language

Expressive language skills—those enabling people to capture their thoughts and talk with themselves and others—are critical to forging a link between the child's

interior life and the outside world. By using language, growing children not only are communicating; they also are strengthening their understanding of the difference between the self and others, testing reality, and gaining tolerance for frustration (Rothstein et al., 1988). The nurturing, reinforcement, and assistance available through verbal interchange solidify positive identification with parents and, with expanded communication skills, the child can enlist an ever-larger circle of adults to provide help and support. Verbal communication is direct and fast. Through speech, children build relationships and explore the world around them, gaining mastery and control through naming objects, people, and—eventually—feelings. Verbal interchange with other people is a primary means of learning and monitoring one's own actions. Because development of verbal skills is highly influenced by practice and by the availability of articulate role models, the social distancing or isolation that is a frequent outcome of any learning disability has profound implications for language use.

Expressive language skills, sometimes referred to as *output skills*, underlie two linguistic functions, speaking and writing. Both functions involve a number of skill components and a complex array of support skills. Both involve retrieving the correct words from memory, sequencing and organizing ideas, and selecting a grammatical structure to communicate them. Children with problems here are likely to be inhibited by their difficulties in speaking, whether these arise from poor articulation, lack of fluency, poor grammar, or difficulties in finding the right words. This inhibition may cause them to appear shy, to gesticulate excessively, or to use disconnected single words. Difficulties in verbal communication can easily become a barrier to making friends or developing relationships outside of the family, and make the child the focus of considerable negative attention in the family. Avoidance, withdrawal, and other maladaptive strategies to save face and avoid humiliation are typical outcomes. As children advance in school, typically beginning in the fifth grade, requirements for written assignments shift from an emphasis on simple narrative to more sophisticated exposition. A lack of skill in expressive language becomes very evident. Writing, which our culture considers the highest and most abstract form of expressive language, becomes increasingly important to meeting academic expectations. Inevitably, writing becomes the basis for considerable stress and anxiety among older children (Shepherd & Charnow, in press).

Effective use of expressive language skills depends on smooth functioning in other areas. Problems observed in a child's use of expressive language may reflect deficits in auditory perception, sequencing, integration, abstraction, attention, or memory. If it is faulty, visual perception cannot play its normal role as an aid to receptive language processing. Children with expressive language impairments generally perform better when they are using the language they know in structured tasks, and are less adept in spontaneous situations. Cultural norms, particularly those involving the use of expressive language, the role of children in family and community, spontaneity of speech patterns and interaction, and the acceptance of

divergence, may be reflected in environments that mitigate—or reinforce—a child's predisposition toward expressive language difficulties.

In Tallal's (1987) report on a large longitudinal study of language outcomes for preschool children with diverse language deficits, children suffering primarily from expressive language deficit were judged to have fared better than those with a receptive or combined (more global) language deficit. According to Tallal, this confirmed the key role of the processing deficit in determining the precise nature and extent of the children's impairment. In this context, another finding presented by Tallal is particularly significant: language-impaired children differ greatly from children developing normally in their processing rate for sensory (nonverbal) information. The language-impaired children can process information presented slowly, but their performance slips considerably at higher rates of presentation. Their ability to remember nonverbal or sensory material shows a parallel decline at higher presentation rates.

Children with expressive or receptive language impairments do not outgrow their difficulties. If anything, they grow deeper and deeper into them, as their processing deficits, which initially may be evident only in their oral use of language, later impede their access to other learning systems, including reading, spelling, and even social interaction. A series of longitudinal studies has confirmed this cumulative negative impact of language disabilities on the ability to learn and interact normally in other settings (Tallal, 1987). Although a child with receptive or expressive language difficulties can benefit significantly from strategic environmental interventions, deliberate repetition, and careful attention to the child's comprehension of what is being said to him or her, one-to-one counseling sessions may prove particularly frustrating for both the child and professional. The social worker or therapist must scale down unrealistic performance expectations and allow enough time in the session for the child to answer questions without feeling pressured or embarrassed. For some children, simultaneous involvement in a secondary activity (playing a board game or building a model) diverts attention from the tension inherent in the verbal interchange, and facilitates ease with an idiosyncratic pace of verbal expression. A fragile self-concept, one highly vulnerable to a perceived failure to communicate, is typical of the learning-disabled child. Special care must be taken to ensure that the language-impaired child feels that what he or she has to say is important, regardless of how it is said or the pace at which it is uttered.

ORGANIZATIONAL AND INTEGRATIVE FUNCTIONS

Time and Sequencing

The ability to select and organize data and activities in response to visual or verbal directions reflects *sequencing and integrative skills*. Children's learning difficulties may reflect sequencing problems in many different areas involved in the

organization and channeling of data from the senses. The identification of sequencing problems is made more difficult by the fact that dysfunctions in visual or auditory perception may be present concurrently. If a child is receiving inaccurate information from the environment in the first place, his or her subsequent attempts to make sense of it and organize it will be vastly more difficult. The child who also has sequencing difficulties will be doubly handicapped. Similarly, children with word finding and sequencing problems also may appear to have difficulties with temporal sequencing.

A child's difficulties in telling time or in mastering the days of the week and the order of the months may reflect sequencing or retrieval problems or difficulties in understanding the concept of time. It usually is clear from the questions children ask and the way they organize themselves to use time whether their difficulties lie with the *abstraction* of the passage of time, with the *sequencing* of time markers, or with *retrieving* the appropriate names of time periods. For example, children who have difficulty with the idea of time's passage often ask such existential questions as "What is now?" "When was then?" or "How will later come?" The child who cannot content himself or herself with the promise of an ice cream cone later in the afternoon probably will become impatient and angry, and may be punished for misbehaving. In fact, the child's difficulty may reflect incomprehension of the regular, cyclic passage of time, and the inevitable arrival of the afternoon. Other children may be successful at planning a day's activities and organizing meetings with friends, but will forget that the events are to occur tomorrow rather than today.

In the classroom, sequencing and organizational difficulties may be manifested by children who are unable to maintain the sequence of instructions given by the teacher or the proper steps for performing a complex task. Diagnosis of this problem is complicated by the frequent presence in the class milieu of competing auditory stimuli, coexisting memory deficits, or the effects of heightened motor activity. All of these may be involved simultaneously. The frustration so often encountered in class can lead some children to rely on such ultimately maladaptive coping strategies as avoidance or clowning. These behaviors often appear to the teacher as willful inattention, or as distractibility or hyperactivity, which may then mistakenly be viewed as the primary problem.

It is at home, however, that a child with organizational and sequencing difficulties may reveal one of the most poignant and far-reaching consequences of the functional impairment: the inability to present self and activities in words. Recounting the events of one's day at work, play, or school; portraying oneself as hero or victim; and explaining a difficulty or excusing a lapse—all of these linguistic activities so fundamental to human interaction involve organizing information in a way that may be beyond the child's grasp. If these children are ridiculed at school—as they all too often are—they may be unable to narrate the chain of events coherently, and their efforts may elicit parental impatience instead of the desired sympathy. One child known to the author used to complain bitterly that

he couldn't "convince" his parents of anything. He meant that he could not present what had happened to him at school, what he wanted to do, or what he wanted others to do for him. When speaking about his experiences and needs, this boy typically presented a jumble of thoughts, assumed that others would recognize the people and events he was referring to without explanation, and often began in mid-argument, as if assuming that an exchange he was having in his head was clearly audible to all. Fortunately, his parents were able both to recognize his idiosyncratic concept of "convincing," and to address the underlying issue of effective narration.

Although this boy's disordered and incomplete narrative style is characteristic of some children with language processing and sequential organizing problems, other children develop such sharply contrasting defense mechanisms as compulsivity and rigidity in direct response to their lack of internal organization. They may be upset by changes in schedules both at home and at school, and their lack of flexibility may become evident in small ways—often by their distress at an unfamiliar babysitter's bedtime routine, changes in weekend plans, an unexpected doctor's appointment, or even the sudden appearance of new furniture in the house.

Narrating past events, planning and organizing future time—whether for enjoyment or for required tasks—present pitfalls for the child with sequential organizing problems. Making or following schedules, allocating limited time among competing demands, or conceptualizing a plan of attack on a difficult, many-stepped project may seem to be insurmountable hurdles. If the skills that will be needed to execute a plan involve other areas of deficit—for instance, when math homework or an assignment to write a short story is involved—the need to harness initial anxiety, to overcome areas of weakness in planning or organizing, and finally to carry out the project itself can easily overwhelm a child.

Children struggling with these combined deficits and their potential for disastrous interaction need strategically designed support systems at all stages of their activity if they are to stay on task. It is easy for children with multiple interrelated deficits to develop secondary inattention problems, such as drifting off into daydreams or engaging in disruptive behavior, rather than focusing on the task at hand. In the classroom, the outcomes can be devastating. At home, parental frustration parallels that of the child and becomes potentially incendiary. When a child's temporal sequencing or organizing problems affect the accomplishment of an important task, structure and support in the development of a plan of action must be provided (Levine, 1987). Encouragement and recognition must continue with each step toward completing the task.

Certain warning signals help to identify temporal-sequential deficits or sequencing and abstraction disabilities. The social worker should look for early difficulties in telling time, discomfort with such time-related concepts as before versus after and now versus later, and an inability to name in sequence the days of the week or the months of the year. Of course, cultural and family style differences

must be taken into account. Different cultures give different meanings to time and space relationships, and value different sequencing and organizing skills. Some families may provide little opportunity for organizing activities, structuring time, or discussing delays in activities ("We'll do it later, or tomorrow"), and the overlearning and repetition necessary for a child to compensate for a predisposition to weakness in this area may not take place at home. A child with no experience in situating actions in time inevitably will appear much more dysfunctional in the classroom than will another child who has the same vulnerability, but whose home life familiarizes him or her with the issues.

Memory

Drawing again on Levine's (1987) conceptual framework, the separate but interrelated cognitive systems that constitute memory are critical to developmental growth, academic success, and interpersonal relations. At the highest level, memory is an integrative function, drawing on five specialized subfunctions: (1) receiving and understanding information (*acquisition*); (2) putting it in an appropriately sequenced format for effective storage (*registration*); (3) allocating the information to one of three general storage areas—instant recall, short-term memory, or long-term memory (*storage and consolidation*); (4) retrieving stored information as needed (*access*); and (5) flexible application of stored data for creative new uses (*transfer training*).

This analysis of memory as involving five functions is based on work by Baddeley (1976) and is the framework for Levine's (1987) extensive discussion of the role of memory in children's learning processes and in their *productive behaviors* (those involving performance and communication based on the reconceptualization, with new information, of knowledge and skills held in memory). Memory functions play an important role in the difficulties experienced by nearly all children with learning problems. A child's original impairment may involve any one of the five subfunctions. However, the interdependency of the different levels of memory and the potential for interfering stimuli from multiple sources, both within the child and in the environment, often make it difficult to determine the specific locus of a memory problem. The following discussion draws on Levine's (1987) interpretation of work by Baddeley and other researchers in the areas of cognition and memory.

The initial process, the *acquisition* of data on which to build a basis for knowledge, involves not only exposure to experience but also the selection of salient data for retention. Perceptual problems in processing and making sense of experience also may impede the ready acquisition of new information. However, children whose exposure to external experience is limited, either in extent or in variety, may have had less opportunity to use and develop acquisition and data-selection faculties than other children whose experiential history has been richer

and more diverse. (Clearly, socioeconomic factors contribute to the range of experiences available, and may play an important part in determining a child's range of sensory input.)

Registration, the second stage of memory, requires a commitment of attention in selecting an appropriate coding strategy for the new data. *Coding strategies*, which facilitate the storage of new information and relate it to information stored previously, include visual imaging, semantic naming, rehearsing, and the use of mnemonic associations. The broader a child's repertoire of coding strategies, the more likely he or she is to succeed in registering new data in memory at sufficient depth. Children who are highly distractible or who are suffering from an attention deficit will register new information in a very shallow manner, and will not retain it from one day to the next. Other children may be inconsistent in their focus on new material, tiring easily and losing their motivation.

The third processing step, involving data *storage and consolidation*, is heavily dependent on the ability to hold data in active working memory for instant recall. This interactive capacity allows information to be sorted and arranged efficiently for subsequent storage in the short- or long-term memory. A child's ability to carry out many school tasks is compromised by difficulties with instant recall and active working memory. Such multistep procedures as sounding out words, performing nested operations to clarify a complicated mathematical expression, or even multiplying numbers mentally all require an effectively functioning, active working memory. A child who understands each step involved in the overall process at the time it is discussed still may be unable to store the intermediate results effectively for eventual retrieval in the final, integrating step of solving the problem.

Short-term memory, one of the two longer-range storage areas, has a very limited capacity; only through creative coding strategies can it be stretched to hold more than seven items. Short-term memory is highly vulnerable to interference, whether due to such internal factors as emotional distress or attention difficulties, or arising from such external sources as a teacher whose instructional technique clashes with a child's learning style. Children with short-term memory deficits typically have difficulty retaining telephone numbers after calling Information, or remembering directions, instructions given by parents, or dates made with friends. Their forgetfulness, if not seen as beyond their control, may elicit verbal reproofs or more serious punishment, even abuse.

Long-term memory holds the bulk of an individual's accumulated learning. Once information has reached short-term memory, a decision, conscious or not, is made on whether to shift it into long-term memory and, if so, on what classification system will be used. Deficits in long-term memory are less common in children than are other memory problems; when they do occur, however, they are typically much more serious, creating real barriers to developmental progress. Indeed, because of their severe difficulties in retaining information, children with long-term memory problems are likely to be mislabeled as retarded.

The fourth, or *retrieval*, stage in Levine's (1987) model is perhaps the one most closely paralleling the lay concept of memory. In general, the ability to retrieve stored information is considered the only conclusive demonstration of having "learned" it; a child whose retrieval skills are slow or require too much effort inevitably will fall behind in school, unable to meet the ever-increasing demands for demonstrations—retrievals—of learned material. Frustration and loss of self-esteem are common outcomes, as the inability to recall what one knows one has learned (or at least tried diligently to memorize) brings a loss of faith in one's capabilities. For children with learning disabilities such a loss only deepens their doubts about themselves.

Frequently, the tension surrounding a request for retrieval of information, such as a classroom test or recitation in front of peers, brings such anxiety that the child's memory fails completely, leaving the child unable to remember anything on the subject at hand. A child's inability to *demonstrate* retrieval of learned information, of course, must be distinguished from his or her inability to retrieve it, and all other factors that may inhibit performance must be taken into account. For example, a child who remains mute when called upon to answer questions in class may be suffering from a retrieval impairment—or may prefer silence to an embarrassing display of a speech impediment, even though he or she has retrieved the information without difficulty. Parallel physical factors may overwhelm the child who cannot write quickly enough to demonstrate retrieved knowledge on a written test administered under severe time constraints.

The fifth and final phase of memory involves the *transferral* of stored information and its creative use in new contexts. As the most sophisticated and flexible use of memory, it requires that the storage and retrieval processes draw on a rich variety of associative linkages between new and old information. The unique relationships drawn by each individual bring a wide diversity of creative responses; a youngster with learning disabilities may excel in the unexpected, almost metaphorical, applications of information, perhaps based on unique perceptions and compensatory coding and storage strategies.

Levine (1987) correctly stressed the extreme sensitivity of all memory functions to interference from internal and external sources. Children who are depressed, preoccupied by a family crisis, or anxious because of repeated failures are unlikely to be able to make optimal use of their memory. Other children, for whom memorization—whether the task itself or the content to be mastered—is highly divergent from family or neighborhood values, may have difficulty finding appropriate coding mechanisms for information without cultural resonance. Furthermore, deficits that seem to involve memory may in fact be related to any of several other functions. A child may have difficulty organizing and sequencing visual or auditory stimuli and integrating them with information already stored. Attention deficits or high distractibility levels may impede the organization and sequencing of data stored in the short-term memory. Finally, the child's cultural environment may provide neither the values nor the experience that would foster

memorization of certain kinds of material. Memorizing the Greek myths may be an excruciating exercise, whereas the latest plot on the action-packed TV sitcom may be remembered in great detail. The family and neighborhood culture reinforces one task, but provides no recognition for the other.

Complex Cognitive Processes

Children with learning disabilities often have difficulties with conceptualization and abstract thinking, both cognitive abilities that depend heavily on organizing, sequencing, memory, and retrieval skills. Children who are engaged in a desperate quest to make sense of the world around them may be giving unwitting testimony to deficits in these crucial skills. Although these children may ask question after question ranging from the totally concrete to the unanswerable, they ultimately have difficulty pulling the results of their research together. They do not understand where all the people are going during the evening rush hour, or why their parents cannot give them an answer. All of the children's books they have looked at over the years, full of pictures of individual mothers and fathers heading home from work or out for the evening, are of no use; the children have not abstracted from the stories the general explanatory theme of evening traffic destinations. The 15-year-old may still blurt out, "But where are they going?" then smile guiltily, realizing that it is a question left over from childhood—although one for which the child never found a satisfactory answer. This same youngster may have no difficulty negotiating a crowded urban bus terminal during the same rush hour, secure in space, but be unable to abstract the principle of multiple destinations or, if the youngster can later reason it out, unable to connect it to the question asked while he or she was actually experiencing the crowds.

Organizing and grouping similar phenomena, making inferences and analogies, generalizing rules, self-monitoring, and flexibility in seeking options—these are the hallmarks of the abstract thinking patterns crucial to problem solving (Levine, 1987). Such techniques free individuals from the endless accumulation of isolated concrete experiences, allowing them instead to insert each new experience into an existing order, or use it to restructure their previous array of accumulated knowledge. The child with learning disabilities may display extreme difficulty with these processes. It is a challenge for the professional to determine whether the child's problems involve the area of abstract thinking, or reflect deficits in skills related to the initial acquisition, organization, and storage of data.

Through movement to more abstract levels of thinking, children come to perceive how others may be feeling and to see the world—and themselves—from an outsider's perspective. Achieving a "social" perspective presupposes both the ability to observe and organize a multitude of details about oneself and others and the conceptual sophistication to generalize, to move from "my self" to "a self," from "the perceiver" to "a perceiver." A child's inability to grasp the perspective of another person, the assumption that he or she is the center of attention at all

times, or his or her inability to modify behavior in response to feedback—any or all of these may indicate a child's failure to advance from a more concrete egocentric view of the world to higher level, secondary process thinking (Rothstein et al., 1988).

According to Flavell (1985) and Levine (1987), the interdependence of the basic and higher level cognitive processes is evident in the way in which the active working memory and sequential organization skills support more abstract levels of thinking. In turn, information becomes more succinctly organized and more easily retrievable when it is conceptualized in a more sophisticated fashion. Thus, children with dysfunctions in any of the basic cognitive areas have to work much harder when they engage in problem solving because they are working with more disparate elements, which are less fully integrated into different memory levels and less easily retrieved. Identifying, through informal and formal evaluation, the locus of a child's difficulties will allow the social worker, parent, or teacher to intervene with strategies that bypass or bridge the cognitive gaps or weaknesses to the extent possible, while exploiting existing strengths.

MOTOR FUNCTIONING

Deficits in gross or fine motor functioning bring children endless embarrassment because of their highly visible lack of control over their bodies' actions. Fear of appearing clumsy to their peers makes them self-conscious, which only heightens their awkwardness and lack of grace. Athletic ineptitude, typical of children with gross motor problems, may intensify an inclination toward social withdrawal, and reluctance to participate in group activities is common. Parents, despairing of their child's lack of physical grace, may prescribe gym classes or dancing lessons to "train" them out of their awkwardness.

Even subtle deficiencies in gross motor functioning can exert a powerful influence on self-image, self-esteem, and personality development. Of all learning disabilities, motor functioning deficits are among the most visible and the most immediately stigmatizing. Children affected by these deficits suffer from both primary and secondary effects: self-esteem already shaken, they are often overprotected because of their vulnerability to more than just the usual bumps and hurts of childhood accidents. Their inability to react quickly and appropriately makes their parents understandably reluctant to allow certain age-appropriate behaviors, thus confirming the child's perception of himself or herself as different, slow, and incompetent.

For the child with gross motor deficits, family and community values regarding competitive sports may be supportive—or devastating. Particularly for boys, excellence in sports can help to win peer acceptance, even in the presence of other areas of disability. However, when sports are the only avenue for winning parent and peer approval, a child who fails, in a dramatic display of his or her disability,

may become seriously depressed. Even more than with the other areas of learning disability, a deficit in gross motor control seems to the child to be a global deficit: the body, to an extent denied by many adults, *is* the self, from the child's perspective.

Shaw, Levine, and Belfer (1982) compared levels of self-esteem in two groups of children—one with gross motor delays and learning problems and one with learning problems alone—and characterized those children with both problems as being in "developmental double jeopardy" (p. 19), because they had more self-image problems and were more emotionally fragile. Thus, during the school years, when body image and physical coordination are so closely intertwined with peer acceptance, failures in this area tend to compound the impact of any other developmental weaknesses. The common wisdom of finding specific areas of athletic endeavors in which a child with gross motor problems can excel is borne out once again. Sports that require the use of "inner spatial data" (Levine, 1987, p. 221) and are performed under the control of the individual (such as jogging, swimming, sailing, track and field events, dancing, rollerskating, hiking, skiing, biking, gymnastics, and martial arts), rather than those involving hand-eye coordination or team interdependence (and the resulting peer pressure), are most appropriate (Wall, McClements, Bouffard, Findlay, & Taylor, 1985).

Fine motor control problems, although often manifested in less striking ways, may have equally profound and far-reaching consequences. For the infant or toddler, exploration of the environment through touching and grasping objects is a primary source of knowledge. Deficits in these exploratory skills—the child's experimentation methods in his or her microcosmic "learning laboratory"—inevitably hinder the learning process by diminishing the tactile feedback available to the child. More subtly, a child's poor coordination may make him or her "accident-prone," eliciting overprotective and hovering attitudes in adults that, although understandable, may dampen the child's further efforts at exploration and mastery of the environment (Rothstein et al., 1988). Difficulties with fine motor control tend to make their initial appearance at home in a child's early attempts at dressing, fastening buttons and zippers, and tying shoelaces. In play situations, a 3- to 6-year-old child's facility at cutting, coloring, pasting, and other "finger" activities affords clues to the observer. A child's performance in school may give rise to concern once the fine motor activities related to writing, drawing, "neatness" of calculations, and so on begin to have weight in teachers' evaluations of their pupils' work. Educational philosophy, whether an individual teacher's or that of an entire school, is obviously a factor. Still common, unfortunately, is a "neatness counts" policy that may penalize a child through lowered grades not only in penmanship but also in the subject area, despite his or her mastery of the material. Social workers may need to work with parents and teachers to support a more enlightened grading policy that makes appropriate distinctions between subject mastery and presentation skills. Even in a supportive school environment, however, children with fine motor control problems become frustrated with their

work very quickly, and must be encouraged to move beyond the looks of their work, however "sloppy" or imperfect, to focus on its communicative power.

ATTENTIONAL DEFICITS AND DISTRACTIBILITY

Although the syndrome known as attention deficit disorder (ADD) frequently is related to the presence of learning disabilities, the relationship is not well defined. Of all children suffering from learning disabilities or ADD, those identified as having ADD by their schools most often are those who are the most disruptive in the classroom. The resulting selective referral patterns are reflected in biased research findings, and the distinction between the two disorders has become blurred in the public mind. Two studies of children diagnosed as having ADD show that approximately 10 percent have learning disabilities as having (Halperin, Gittelman, & Klein, 1984; Shaywitz, 1986). Other studies of children with learning disabilities estimate that between 40 and 80 percent also have a physiological basis for their hyperactivity or distractibility (Holobrow & Berry, 1986; Safer & Allen, 1976; Shaywitz, 1986). The physiological basis is crucial to the definition of ADD. Although these characteristics may be aggravated by stress and anxiety, other causal factors are present (Silver, 1979).

The characteristics of ADD that are most devastating, both for the child and for those around him or her, are physical restlessness, impulsivity, aggression, and a short attention span. ADD often is referred to as a low visibility, high prevalence disorder—the fact that children with ADD tend to look perfectly normal often leads others to conclude, at least initially, that they are simply willfully disobedient. In reality, however, children with ADD are not able to organize their own activities in a productive way without outside help (Levine, Brooks, & Shonkoff, 1980). Children with ADD, whether or not hyperactivity is also present, display different symptoms at different developmental stages. Activity levels increase up to age 3 and then slowly diminish for some; others remain excessively active through early adolescence. However, the attentional deficits generally remain, continuing to interfere with learning and work in structured settings, and also with social relationships. Undue vulnerability to perceived failure may remain, and self-esteem may continue to be weak.

Girls with ADD recently have been in the spotlight as an underidentified population at risk. Several factors may be at work. Berry, Shaywitz, and Shaywitz (1985) suggested that ADD with hyperactivity (ADDH) is so strongly linked with boys, in the lay perspective, that only the most severely affected girls may be identified correctly. The same researchers postulated that less severely affected girls may be better able to tolerate the difficulties they encounter in school and are less disruptive in the classroom than their male peers. Thus, boys with ADDH, who experience greater difficulty controlling their impulses and are consequently

viewed by adults as more severely impaired (Tauber, 1979), are identified and diagnosed more quickly.

Berry and his collaborators (1985) found that both girls and boys with ADDH used inappropriate and aggressive behavior in peer interaction; the girls, however, encountered more peer rejection. As a tentative explanation of the different acceptance rates, the researchers suggested that such behavior is closer to the range of accepted play patterns for boys. Girls' play, in contrast, traditionally emphasizes gentler, more language-dependent games. The aggressive behavior typical of children with ADDH, combined with the language and speech problems frequently displayed by girls with this syndrome, accordingly falls further outside the acceptable range and elicits greater rejection (Hechtman, Weiss, & Perlman, 1984).

Children constantly are refining their ability to maintain a pattern of selective attention—paying attention, for example, to the teacher's words and the writing on the blackboard rather than to their own dirty fingernails and the whispers of classmates at the back of the room. Any neurological dysfunction that interferes with concentration and focus inevitably affects the child's ability to observe and process aspects—both sensory and social—of his or her environment. Consistent growth in the ability to control attention is fundamental to the child's acquisition of knowledge and the varied problem-solving skills that are, in turn, necessary for achieving developmental maturity. Children who are highly distractible and who react indiscriminately to everything that happens around them appear constantly out of focus, as if they were trying to "catch up with themselves." They exhaust those around them, and never seem to learn from their experiences.

Children with ADD may tune in and out of selective focus, distracted from moment to moment by visual or auditory stimuli, or by thoughts of their own. Such distractibility may be aggravated by a sensory environment too rich in visual or auditory data that they are unable to screen out, select, or organize. Other children may be hypersensitive to tactile sensation: the itchiness of clothes, a light tap on the shoulder, or the feel of a chair. Before they know it, they are out of the chair, caught up in a fight, or peeling off their clothes, unable to concentrate on anything but their own overriding discomfort.

Impulsivity is both a frequent and particularly disturbing symptom for children with ADD and the people around them. Rapidly shifting attention and behavioral responses from one aspect of the environment to another, children with ADD are unable to reflect on, or to monitor, their own behavior. The inappropriate behavior of impulsive children—even when they think they are thinking things through—frequently alienates parents, teachers, and peers. Indeed, these children sometimes seem to go out of their way to select an activity or behavior that will exacerbate an already uncomfortable situation. Not surprisingly, these children rarely gather the "system advocates" they need to protect them during their growing years. They exhaust everyone. The results of their poor judgment involve

them in increasingly serious difficulties the further they move from the protective base of home and school.

Closely akin to impulsivity is task imperistence (Levine, 1987). Some children with ADD may seem never to finish what they start, dabbling in one area and then wanting to move on, and others may show little more than superficial interest in anything. This imperistence is particularly distressing to parents, who shower their children with toys, hoping to catch their interest, and then watch with dismay as each new toy is discarded in minutes. Similar patterns of imperistence may be present in social situations. Friends are transitory in these children's lives, and their superficial interest in other people and inability to pay prolonged attention to others may become increasingly evident with their later attempts to develop sustained relationships in latency and adolescence.

Other children may manifest what has been called "insatiability" (Levine, Brooks, & Shonkoff, 1980, p. 56). Just as they quickly tire of a toy, they also find the tasks of daily living too bland and are forever seeking more stimulation and more excitement. Parents brace themselves when such a child comes home from school, knowing that despite their best intentions the household soon will be in an uproar. It is almost as though these children, unable to tolerate a mild emotional climate, must precipitate an emotionally charged situation in order to feel engaged, alive; those with sufficient powers of introspection will ask why nothing is "happening" at dinner, or on a picnic. By that, they mean there is no tension in the air, nothing to engage them or focus their need for change. As these children grow older, their insatiability may well exhaust their friends as well as their family.

These specific primary manifestations of ADD are only part of the problem. The difficulty many ADD-affected children have in responding to social conventions, constraints, and limits arises not only from their neurologically based impairments but also, with increasing age and an ever-growing track record of failure, from the child's anxieties at the expectations he or she may not meet. A child may talk incessantly, as if to drown out others' thoughts and defer the demands he or she fears may be made on him or her. Similarly, a sudden spate of hyperkinetic activity or distractibility may coincide with the onset of a classroom (or other group-oriented) task requiring sustained attention. Further, the child's inability to abstract the implications of specific sequences of events may well make rewards and punishments of little use in redirecting his or her behavior. A teenager who shrugs off 3 weeks' suspension from school may fail to perceive that future infractions might lead instead to expulsion. Such children have been described as "refractive to punishment" (Levine, 1987). A downward spiral of more serious punishments for more serious misbehavior is a familiar pattern, and one to which the social worker should be alert. Even in the absence of more clear-cut symptoms, ADD should be considered as a possible factor in *any* child's apparent tendency to provoke extreme punishment or repeated abuse from family members.

Both parents and professionals face a difficult task in attempting to distinguish between willful disobedience and a genuine disability arising from a child's

impaired control over his or her behavior. However, an even greater challenge often follows a diagnosis of ADD: that of providing, within a family situation severely damaged by years of disruptive and frustrating behavior, the environment the ADD-affected child requires. Children who need support as well as structure, positive reinforcement for tasks well done as well as negative consequences closely tied to their own poor judgment, may find themselves handed a new script—and find that the rest of the cast, exhausted if not actively resentful, effectively has left the stage. After years of chaotic family meals, nightmarish expeditions, and siblings permanently angered by what they perceive as favoritism, there may be little family support left, as each member seeks escape in isolation and the household becomes a series of physically and emotionally closed doors.

SOCIAL SKILLS

In the preceding discussions of specific learning disabilities and their power to shape the lives of those who suffer from them, the potential for impaired self-esteem and consequent withdrawal from social contact has been a fairly constant refrain, as has the ostracism that may result from a child's failure to perform socially valued tasks acceptably. Experienced social workers have found that many, though not all, children with learning disabilities do have social difficulties, whether in peer interaction (including establishing and maintaining friendships, and, in the adolescent years, developing romantic or sexual relationships), interacting with adults, or responding appropriately to specific social situations. Speculations that such difficulties may, at least in some cases, be manifestations of a separate, *social* learning disability, rather than secondary consequences of more narrowly defined perceptual deficits, have gained tentative support from recent studies of long-term adjustment and patterns of workplace success or failure among learning-disabled adults (Fass, 1987; Van Hasselt, Hersen, Whitebill, & Bellack, 1979). Rather than having outgrown the social difficulties experienced during childhood or adolescence, subjects in these studies often displayed serious problems in adult social interaction both on and off the job. In particular, difficulties in the employee/supervisor relationship often were severe enough to result in an employee's being fired. Probing of the areas of specific difficulty showed that these learning-disabled adults tended to behave impulsively in relationships with others, had difficulty differentiating between social and work-based behaviors, or failed to pick up behavioral feedback or social cues meant to help them modify their behavior. Allowing for the necessary age-appropriate changes, these are the same problems that plague the first grader or high school student with poor social skills.

Although research on the relationship between social abilities and learning disabilities is still in an exploratory phase, much effort is being expended on the necessary preliminary tasks of identifying and defining social abilities and identifying specific learning problems that may be relevant (Levine, 1987). Although

direct linkages between specific neurologically based deficits and social dysfunctions are still far from being established conclusively, leaving the definitional issue of a separate social learning disability unresolved, the work of Levine and others offers both a helpful conceptual framework for assessing a child's social development and suggestive empirical correlations that merit further investigation. Of course, regardless of definitional or etiological questions, a child's impaired social abilities can constitute a tragically handicapping condition, leaving few areas of his or her life unaffected. The child's problems are all too easily identified by parents, teachers, and peers, drawing responses of impatience, anger, misunderstanding, and rejection (Bryan & Bryan, 1981; Gresham & Reschly, 1986). These children show increased levels of anxiety and depression, and lower self-esteem, in comparison to their nonhandicapped peers (Cullinan, Epstein, & Lloyd, 1981).

Social skills have been defined by Schumaker and Hazel (1984) as the cognitive functions and discrete verbal and nonverbal behaviors that are performed during a person's interaction with others. Social competence is established through performance—in a socially acceptable manner—of a sequence of learned social skills. The words *sequence* and *learned* are highly suggestive, evoking the earlier consideration here of sequencing and organizational skills, and the relativism inherent in the definition of social competence serves as a useful reminder that interpersonal interaction, like many other human endeavors, is constrained by complex, wildly varying, and largely arbitrary sets of rules. Consciously or unconsciously, people must learn the rules that govern their individual milieus, drawing on social abilities to initiate and maintain relationships in these milieus.

Children who have been identified as having learning disabilities often experience social failure in several areas. They frequently have great difficulty making and keeping friends, they often are accused of self-absorption and insensitivity to the needs of others, and their poor judgment about the appropriateness of various behaviors affecting other individuals or society often leads them into trouble. These areas are closely paralleled by the three major themes Levine (1987) identified: (1) friendship formation, (2) understanding of others, and (3) moral development. In Levine's scenario, a child's expectations of more long-lasting, mutually supportive, trusting, and altruistic relationships grow along with his or her increasing maturity, and increased understanding of others proceeds through a conceptual advance from rigid dichotomizing of people as all good or all bad, toward a more subtle and relativistic perception that people behave differently in different circumstances. Basing his treatment of moral development on Kohlberg's (1963) conceptual framework, Levine demonstrated that the growth of moral values in children is accompanied by an increasingly sophisticated code of fair versus unfair, and appropriate versus inappropriate. Levine identified this code as fundamental to children's understanding of others' behavior in relation both to themselves and to the larger society.

Although research effectively linking specific types of dysfunctions with specific difficulties in social development is extremely limited, Levine (1987) proposed a

series of tentative connections between a number of deficit areas and their possible impacts on social abilities. Attentional problems, for example, may contribute to some children's difficulties in becoming part of a social group or establishing closer relationships within it. As Levine noted, inattention to detail causes children to miss salient clues and feedback on their own behavior when they enter a social situation. The superficial and impulsive work that is characteristic of these children in school may be paralleled in their interpersonal relationships—conversations may be cut short in mid-sentence as a new thought flits across the child's mind or a new object diverts the child's interest. Preoccupation with their own needs and drives leaves little room or incentive for concern for the needs or interests of others, and no motivation to share their views in a genuine give-and-take. With continuity of exchange and returned interest so conspicuously absent, both peers and adults tend to drift away from the unrewarding engagement.

Other perceptual and cognitive deficits have been tied tentatively to specific difficulties in social development. Some children's difficulties in learning to identify and interpret nonverbal messages have been linked speculatively to problems with perceiving and organizing simultaneous gestalts of visual-spatial stimuli (subtle facial expressions indicating approval, a noncommittal attitude, impatience, or disgust; suggestive or menacing postures). The frequency with which learning-disabled children have difficulty predicting social consequences and learning from social experience—two critical developmental areas for all children—has led some researchers to posit a link between sequential reasoning deficits or specific memory disorders and trouble in these areas (Levine, 1987). Poor receptive language skills hamper many peer interactions by making it difficult for a child to interpret what is being said to him or her and, consequently, to respond appropriately. Of course, fluent command of expressive language is critical in almost all forms of social interaction beyond the most intimate. A child who cannot "get control of" a social situation except through physical means is on a dangerous path (Donahue, 1984; Levine, 1987).

Social maturation, proceeding through analysis of social situations and reflection on social problems, requires some facility at introspection and self-criticism in addition to overall interpretive abilities. Although some children who have difficulty in solving more "cognitive" problems experience similar troubles in the social arena (Levine, 1987), others seem to be able to conceptualize and abstract rules of behavior and social functioning through their ability to pick up feedback. For many children, the importance of social acceptance so far outweighs that of academic attainment that their cognitive efforts, along with other abilities and personality traits, are devoted entirely to the problem of becoming part of a social group. Their diligence in this area may provide much-needed confirmation of their own worth, and their increased sensitivity to the appropriate social behavior in different situations and their cultivation of social adaptability may become an important passport to broadened options in adult life. However, a child's abandonment of academic endeavor in favor of a full-time pursuit of social

acceptance may have profound consequences. Particularly in the information-based, postindustrial society of the developed nations, such a step early in life may limit a child's future options sharply. Social workers, teachers, and parents must strive to maintain some balance in the child's life by ensuring enough academic "success" to motivate continued efforts in school-related tasks.

In recognition of the great handicapping potential of social deficits, remedial curricula have been developed, both to teach relevant social skills and to facilitate generalization of broader behavioral patterns. Remediation typically parallels subject-oriented academic instruction and is targeted at specific deficits. There currently is little consensus on which skills should be taught or on how they should be taught and assessed. Some limited evidence exists that relatively few sessions of coaching in social skills do make a difference in peer acceptance of the socially impaired child. The opportunity to practice in a "safe," nonjudgmental environment has been found to be particularly helpful (Oden & Asher, 1977).

Efforts at social remediation raise troubling issues. Whose social skills should the child be taught? When family values—perhaps reflecting gender roles or class- or culturally related traditions—conflict with those of the community, which values should prevail? In addition, placing social deficits under a remediation "umbrella," inside an exclusively educational framework, limits the ways in which intervention is conceptualized. It is important to establish a variety of environments in which children can practice social skills and receive feedback in a protected atmosphere. Social workers, who engage children with social skills deficits in a variety of settings (home, social agencies, hospitals, and community centers, as well as schools and afterschool programs), are uniquely situated to provide this variety. Children with these deficits often have difficulty generalizing behavior from one setting to another. Offering diverse opportunities for social practice in the communities in which children live and play both underlines the transferability of social skills and ensures some congruence between the patterns taught and the child's usual environment.

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