Part Two
A Broader Perspective on Learning Disabilities

Here are the very people of the streets whom he passes every day, here they are coming to him . . . telling him all about it, how it happened, what it feels like, why they did it: Looking to him, right away, for advice and psychic. They are no two of them alike: And their records laid before him range through every intermediate shade . . . . He begins to see that he has more to learn than the use of the stethoscope: He must learn lives.

—Confessio Medici

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OVERVIEW

An alternative view of learning disabilities is provided by the systems approach. This approach negates none of the findings and theories described in Part One of this case study. Rather, the systems approach presents a comprehensive framework for analyzing the dynamic interaction of biological, psychological, social, environmental, and technological factors.

The systems approach is appropriate for describing the complex system that constitutes the field of learning disabilities research, training, and services, and the larger system of which the field is a part.

Integrating the Approaches to Learning Disabilities

The systems approach presents an integrated view of the context in which learning disabilities exist. Rather than any single factor, the relationship of factors *is* the unit of observation. The systems view is used as a technology for understanding the existence, prevalence, and nature of learning disabilities.

The Integrative Approach as an Alternative to the Traditional View of Learning Disabilities

The traditional view of learning disabilities is that some unfortunate individuals have them as they might have a cold or a headache (52). The assumption of this approach to handicaps, and to a host of other human problems, is that the disorder resides in the individual, who will carry it until cured (31). Identification, diagnosis, and treatment reflect this assumption. We identify *learning* disabilities by administering a battery of tests, by taking school and developmental histories, and by observing the child's behavior in the school setting.

In addition, the increasingly sophisticated hard technologies of brain and biochemical research are investigating the physiological nature of learning disabilities. The physiological disorders thought to underlie learning disabilities appear far more subtle than nerve damage, tissue pathology, or abnormal blood measures; they are invisible except possibly to yet more sophisticated research.

The assumption of and search for underlying physiological dysfunctions owes much to the medical model of treatment, Even in school settings, practitioners in the field speak of "diagnosis" rather than "identification" and of "symptom" rather than "difficulty. " One of the problems with using the disease model is that students are often referred to psychologists for possible learning disorders when: "The origins of the problem were in the interaction of the school system with the particular needs of the child" (52).

Viewing learning disabilities as medical problems has also been criticized as an attempt to "biologize" what might well be social problems. Theorists have "posited organic casualties for poverty, aggression, and violence as well as for educational underachievement" (47).

The systems or integrative approach does not deny that learning disabilities have a physiological basis. Nor does this approach challenge the possible efficacy of a range of treatments corresponding to the variety of learning deficits. The approach negates none of the specific studies in the current field but rather sets these findings in context. Such an integrative approach considers the relationships of all the component parts—biological, social, environmental, and technological. These relationships are considered to determine the effects of learning disabilities on the lives of individuals, their families, their schools, and their nations,

The concept of the dynamic relation of many factors is central to the systems approach. Rather than any single factor, it is the relations among factors that are observed.

The systems approach, long ago introduced into biology and physics, made its way into the social sciences. The social sciences attempt to use the approach to understand the existence, prevalence, and nature of learning disabilities.

The Systems Approach to Data: Looking at Relationships Rather Than at Single Factors

Scientific method dictates that researchers attempt to "control" as many confounding factors as possible to observe the relationship between two chosen variables. The systems approach, rather than trying to control or isolate factors, attempts to see how factors fit together. Not surprisingly, the systems researcher is more likely to analyze certain kinds of data along with other kinds.

The causes of learning disabilities are presumed to be not exclusively biological, emotional, or social. The approach helps to explain how so subtle a disorder--so subtle that it was long unrecognized in millions of people now identified—is one that can shape entire lives. It also helps explain why learning disabilities are common in educational settings in this country.

The following relations ought to be considered when using a systems approach to learning disabilities:

- the relation of the left hemisphere of the brain to the right hemisphere,
- the relation between an individual's learning strengths and learning weaknesses,
- the relation between an individual's dysfunction and the gifts the individual has to compensate,
- the relation between the individual and the family,
- the relation between the individual and school personnel,
- the relation of the family to the school,
- the relation of the school to the immediate community,
- the relation of the school district to the State department of education,

- the relation of Federal legislation and Federal agencies to the State department of education, and
- the relation of mandates, such as Proposition 13 in California and Proposition 21,'2 in Massachusetts, to school function and school personnel.

Even this list is far from complete, since other relations are also potentially significant.

Using the Systems Map: Getting Around Without All the Data

There are many important questions left unanswered. Is there a physiological basis of learning disabilities? Do food additives contribute to hyperactivity? Is mainstreaming helping or hurting those who are learning disabled?

It is not possible to answer these questions before making decisions about identifying and treating learning disabilities. The booming field of study has provided a great number of kinds of quantitative data, many of them contradictory or incomplete.

Quantitative data are important but not sufficient, Important nonquantitative factors to consider are some features of the environment where the handicap occurs. These features provide the map to locate facts and to get a sense of their meaning.

Looking at Lives Rather Than at Single Factors: A Case Study

Describing the life of one with a learning disability is an example of a systems approach to gathering data and interpreting them.

"John" is an intelligent 12-year-old who lives in a medium-sized American city. He is the oldest of two children. His parents are divorced. His mother has remarried and is living in a small town, hours from the urban area where John lives with his father and younger sister. A custody fight between the parents has temporarily been quieted by a court decision that John should spend I year with his mother in the rural school district and the following year with his father in an urban school district. The rural school district employs many teachers who grew up in the area and who attended the very schools where they now work.

The principal of the school was a classmate of many of John's teachers. The school district is attempting to comply with the new Federal regulations of Public Law 94-142. Specialists are not attracted to the rural school district, but, despite the small number of specialists, the small setting makes it possible to serve the needs of special education students comfortably. Communication among the employees of the school is relaxed, taking place in and beyond the school setting. The school population is relatively homogeneous.

John attended the rural school district last year. When he entered the district, he had already been identified as learning disabled by the urban school district. His special education teacher knew John as a student by the time John was assigned to work with her 2 hours a day. John's special education teacher and classroom teacher had known each other for years and exchanged information and support almost daily, The classroom teacher didn't hesitate to ask the principal, her old friend, to cover her class when she had to leave for a meeting with other school personnel about John's program.

In the urban school district, John had the advantage of a greater number of specialists. He not only went to a special education teacher, he also had a speech teacher and "adaptive physical education. " However, the teachers found it hard to speak with each other. Although the teachers wanted to work closely for John's benefit, i t was only during the biannual meetings to prepare his IEP, that they could exchange information. The psychologist who had tested John didn't have time to meet with the classroom teacher or the special education teacher because of district demands to serve several schools. The classroom teacher hadn't been able to attend the IEP meeting because no one was available to cover her class. She never received a copy of the IEP and never modified curricul urn requirements for John. In addition, the classroom teacher had the herculean task of teaching a class with non-English-speaking children, from Vietnam and Iran, a physically handicapped child, some with "behavior problems, " John, and what are called the "normal" children. In the group of "normal" children were several "gifted" students with parents employed by the local university. When it came time for the parent conference, the classroom teacher was at a loss: she was unfamiliar with the psychologist's testing results and had not integrated them into John's curriculure. John's parents, hardly on speaking terms with one another, both expressed disappointment with John's school progress. After the meeting, John's mother made the decision to have a parent advocate to represent John's interests to the school district.

While attending the rural school and living with his mother, stepfather, and stepbrothers, John would visit his father and his father's new wife on holidays. When he returned from these visits, school personnel noted that he was disruptive in class, was abusive to other children on the playground, and had a shorter attention span. Hearing of this behavior, John's father was convinced that the rural school district could not meet John's needs. John was tested intensively and frequently over a 4-year period by the school districts and by private psychologists. Testing often took place just as John was returning to one parent, at the times school personnel had observed were particularly disturbing. The testing results, not surprisingly, were inconsistent and contradictory.

The court handling the parents' custody dispute assigned a school specialist to determine the ability of each school district to meet john's needs. On the basis of the specialist's recommendations, the court decided that John should remain with his mother and attend the rural school district.

John's story is presented to illustrate that learning disabilities can be so dependent on the dynamics of school organization and the family that they can be nearly impossible to evaluate properly and to program effectively. School personnel, for example, were well intentioned, well trained, and hard working, but were not always able to teach John properly given the difficulties of the school setting. Their social and organizational context profoundly limited the full use of their expertise. Yet, as the situation became more complex, fragmented, and adversarial, more and more experts were called in. The rural school district lacked the expertise of special education personnel, but was seen by the court as meeting John's needs more fully, perhaps in part because the context in which the school personnel worked was a relatively integrated, smaller community.

Given the confusing, discontinuous, and stressful aspects of]ohn's family and school lives, it stands to reason that he would have a difficult time learning. Perhaps another child with the same learning strengths and weaknesses might have met with far more school success if the

school and family contexts in which the difficulties appeared were less stressful and more supportive.

The Social Context

The breakdown of social cohesion is seen in the fragmenting American family as well as in the withdrawal of Federal and State support from the public domain.

Isolation as a Handicapping Disorder

The modern social context is, to a great extent, the context of stress. Although we are accustomed to descriptions of our plight, we continue as creators and victims of environmental hazards, dangerous social settings, the shrinking family unit, drug abuse, alcoholism, and divorce. The media, the arts, and the social and biological sciences all in their own way provide daily chronicles of these phenomena in our culture.

Dependable and meaningful social connections—probably the most important technology available—are becoming increasingly rare. As one of myriad examples, the family breakfast, once a sociological given, is now fast becoming a period piece. The lives of children are often speedy and discontinuous. Moreover, those attempting to support, teach, or cure children suffer from the same social pressures that the children do.

The breakdown of the extended family (210) means the parents of a handicapped child cannot rely on continual support from relatives(120). Instead, they must often face problems alone or with anyone who might be seen as sympathetic or trustworthy.

Within the family, when family roles are rigid— what anthropologist Jules Henry has called "role segregated" (99)—the wife's activity and investment might consist only of housekeeping and childcare and the husband's only of breadwinning. This domestic specialization has been described as sometimes so strict that neither wife nor husband can emotionally support each other.

The well-being of family members may also be seriously threatened by work that is emotionally exhausting, financially insecure, or less than stimulating. Being harmed by the workplace makes it less likely that one can return home to make contributions of energy and good spirits to the rest of the family (215).

Isolation may occur in many regions of modern life. The families of handicapped children might suffer some isolation, possibly compounded by feelings of shame. Not only may the child who has learning problems be viewed with less esteem, the parents' capabilities as caretakers may also be brought into question (120). Parents themselves may also question their own competence.

The isolation of families of the handicapped often leads to emotional strain and exhaustion, less effective relationships with the handicapped child as the strain continues, maintaining the child close to home, and being seen as outsiders by others (120).

The Shifting Federal Stance on Education

Providing equal opportunity for the poor, racial and cultural minorities, and the handicapped has been the stance of the Federal Government from the mid-1960's to the present. Efforts for equal opportunity have focused on the creation and support of programs for the disadvantaged, the handicapped, and the needy to receive fair treatment from educational agencies and on the enforcement of laws and rulings of the Supreme Court about discrimination based on sex, race, and national origin. Continuing Federal commitment for equal opportunity, however, is now questioned daily in the media.

Harold Howell II, a former vice president of the Carnegie Foundation, recently wrote that two important features of Federal funding for the disadvantaged will soon be seriously compromised. Title 1 of the Elementary and Secondary Education Act will soon be "unrecognizable." Block grants for education, earmarked for no groups in particular, will result in the "use of Federal education funds primarily to relieve State and local taxpayers. " Also changing is the system of student aid programs for colleges and universities (104).

The U.S. Department of Education, formed only a few years ago, might be discontinued. The Secretary of Education, Terrel Bell, at one time

announced that he will preside over the dismantling of the department.

The shift to the private sector for education can be seen clearly in California where the voucher system is on the horizon. This system would award tuition grants to pay for schooling in the private sector. Debate over the voucher system has understandably involved concern over the demise of the public school system, regarded by many as central to a democracy.

Learning Disabilities as Diagnostic Signs for the Health of Society

What can be said about the health of support systems, formal and informal, if "invisible" handicaps, which many learning disabilities are, can profoundly affect self-image, school success, and employment? For those in the middle and upper-middle strata, a learning disability may mean low self-image, a sense of isolation, and some difficulties related to school and career. For those in the lower socioeconomic strata, a learning disability may have far more handicapping power and may contribute to delinquency, unemployment, and imprisonment. Many of the people with learning disabilities, regardless of their social or economic status, live in the cracks in some sense, hoping that their "stupidity" will not be revealed.

Given all this, can one say that the disability lies solely within the individual? Perhaps this interpretation itself represents a disability. If the social response to learning disabilities is somehow imperfect, how? Do we simply lack adequate technology? It is interesting to note that learning disabilities are only recognized in cultures of high technological development. Preindustrialized or low-technology cultures don't seem to "have" learning disabilities. One legitimate question is thus: Is there something about highly technological cultures that provides fertile ground for learning disabilities to develop?

Redefining Learning Disabilities

Learning disabilities are redefined here as a social construct as well as a possible physiological fact.

Social and Emotional Aspects of Defining Learning Disabilities

Learning disabilities are handicaps that, as their name indicates, take more than one form. Individuals identified as learning disabled have a wide variety of profiles. Some of these disabilities might be primarily neurological, others primarily "ecological. " The quality of family, school, and community life often determines to what extent a learning disability will have a disabling effect.

A young girl of 7 is having trouble learning to read. She confuses the letter b with d, the letter p with q, and the letter p with g. She is a bright child and converses with a good vocabulary and much expressive detail. Identified at an early age, she is receiving help from an experienced learning disabilities specialist. The prognosis is excellent, not only because she is receiving appropriate help early, but also because of integrated social supports: the parents are both present and agree about the nature of the difficulty, the school *is* small, and the teachers are specialists. The family has lived in the same neighborhood for years and relatives are nearby and willing to help out.

Another 7-year-old girl has no visual confusions but has trouble at times understanding what her teacher says or understanding the content of what she reads. It seems that her problems in learning language are entwined with a good deal of anxiety. This child's parents are recently divorced. The father believes that it is just a matter of the child realizing that she must do things for herself; she must try harder. The mother is concerned that the father pressures the child. The teachers at school agree that the child needs not only a program for her learning disability, but psychotherapy as well. The parents can't agree to provide for either. Her prognosis, understandably, is not as optimistic as that for the first girl.

The descriptions of learning disabilities vary in part because of such different social contexts. The definition of learning disabilities is a social construct **as well as** a biological and educational one. In speaking of mental retardation, Sarason and Doris write (181): "As a social or scientific concept, mental retardation has undergone dramatic change and there is every reason to believe that the process will continue. " Sarason's social history

of mental retardation suggests that the definition has "varied as a function of time, place and society."

The function of defining a handicap is not only to recognize a group of people who are different from the majority, but to justify social action with regard to them (181). Over time, our view changes of what social action is appropriate. The definition of learning disabilities as a handicap based on neurological dysfunctions may, in turn, shape our response to them. One may well be less frustrated or angry with a student, for example, if one believes he is not learning because of a problem he has no control over. If, on the other hand, one believes that it is a problem of "motivation," one might attempt to change the child's behavior rather than accommodate to it.

Clinicians and teachers have long noted, although it is not commonly discussed in the literature, that parents are often relieved that their child has a learning disability. Knowing a physical problem may relieve them of the worry of being the cause. School personnel might also feel the weight of accountability lifted. Medicalizing an educational problem in this way also can be seen as imparting to learning disabilities specialists the status of working in a medically related field. Thus, there are social reinforcements for viewing learning disabilities as neurological phenomena rather than as a reflection of our time, place, and culture.

Edwin Schur in The Politics *of Deviance* (187) notes that "collective definitions" of deviant states have a developmental cycle of their own. Part of this "developmental process" is the discovery or invention of a new deviance category. "This is not to say, " he states, "that such a new definition has literally created the problematic behavior itself, " but rather that the new "collective characterization has extremely important consequences. " As an example of this process, Schur notes the "discovery of hyperkinesis. "

The redefining of learning disabilities recognizes that part of what we are describing, along with problems in learning, is our social view,

Disabling Settings: School Services for the Learning"Disabled Population

The legal fiat to mainstream the handicapped has placed a considerable burden on classroom teachers who are faced with highly heterogeneous student groups without appropriate training or ongoing support from special education personnel.

The population of the mainstream is changing: two decades of social action and legislation have provided access to the mainstream for racial and cultural minorities as well as for the handicapped. The definition of the mainstream must change, and with it, the understanding of what it is that the diverse population can share.

Disabling Settings

The nature of some learning disabilities is such that symptoms can seemingly appear and disappear in different situations. In situations of high stress, it is not uncommon for profound regressions in reading and writing to occur. Supportive settings tend to enable learning-disabled individuals to use their learning strengths to compensate.

Some initial research, reported in Part One of this case study, indicates that mainstreaming might overwhelm some handicapped students. Other studies indicate that the legal guidelines for complying with Public Law 94-142, with regard to mainstreaming, identification, and program implementation, have resulted in considerable stress among school personnel.

The demands of teaching a highly heterogeneous population in an integrated classroom may well be a disabling setting for teachers. The "least restrictive setting" for the handicapped student, as defined by the school district, may be the most restrictive setting for good teaching.

The word "mainstreaming" does not appear in Public Law 94-142. The word used is "integration. " Although these words are commonly interpreted interchangeably in practice, mainstreaming does not necessarily integrate the learning

disabled into the current classroom life. Although such students are physically included in regular classrooms, as long as these classrooms are organized around reading and writing these students may not be truly "main streamed."

In addition, school services are organized around the learning weaknesses of the learning disabled, problems in reading or spelling or whatever is elevated to provide definitional power over the entire person. Learning-disabled students, b_y definition "normal" in all other respects, might also be gifted, Thus, recognizing their learning handicaps might mask the recognition and development of a broad range of talents, skills, and sensitivities.

Out of the Mainstream: Handicapped Teachers

Along with stressful work situations, school personnel often have to deal with isolation. Studies of the implementation of Public Law 94-142 indicate that classroom teachers have frequently not received the training necessary to teach handicapped children in the regular classroom. Some school psychologists have been described as seeing their jobs as finished when the testing report on a handicapped child is written. Their expertise is needed to train and support the classroom teacher, who has now become, in many **cases,** the person primarily responsible for teaching the handicapped. The school psychologist, however, is also often handicapped by too many referrals.

One factor that could be said to contribute to students' learning disabilities is the handicapping of those who work with them. Stressful work situations for teachers can undermine effective programs for students. Without considering how the workplace can handicap teachers, one might make the common error of believing that the problem can be adequately addressed with more teacher training, more new materials, more specialists, and more hard technology.

Fragmentation of the Interdisciplinary IEP Team

The requirements for an interdisciplinary assessment team as outlined by Public Law 94-142 assume that administrators, special education specialists, classroom teachers, and psychologists will

be able to coordinate their efforts to evaluate and program for the learning disabled. The literature of the field describes the "overlapping jurisdictions" of specialists (95) and teachers confusions about their roles.

There might be sufficient expertise in the schools to identify and teach the handicapped. Nevertheless, this expertise in and of itself may not be sufficient to teach the handicapped successfully. The relations among those working in the schools have not been addressed by the legislation and not accorded sufficient importance in the literature.

A recent unpublished study is thus of note: an investigation of IEPs for learning-disabled children indicates that the effectiveness of these plans depends on the "harmoniousness" of the working relations among the professionals on the IEP team. In addition, effective IEPs took into account the teacher's needs as we]] as the student 's. Three t. four hours seemed necessary for the team to come up with a plan for the learning-disabled child (129).

Just as physical placement in the regular classroom presents only potential rather than certain integration, the fiat for "interdisciplinary" teams for evaluation and planning doesn't ensure that disciplinary boundaries allow exchanging information and offer support. In addition, legislation cannot ensure the cooperation of the family.

Unfortunately, one cannot legislate for harmonious working relationships. Nor can one legislate for the amount of time or quality of thought required for transforming a set of test scores into an appropriate plan for learning. No amount of funds will ensure quality of thought, performance, or willingness to cooperate.

The Changing Nature of the Mainstream

A growing number of students are not having their needs met by the public schools (71). This unfortunate situation appears related to the fact that the population of public schools is increasingly heterogeneous. The Bureau of Education for the Handicapped estimates that there are 8 million handicapped school children in this country. In addition, 35 percent of the black population and

47 percent of the Hispanic population is below the age of 18, while only 27 percent of the white population are. There is a movement toward the private sector providing education—a movement that the Reagan administration appears to support.

One can no longer assume that the great majority of public school students have racial or even cultural similarities. The movement for universal access to public education supported by both Democratic and Republican administrations since the 1960's has changed the public school community. Who is the mainstream and what are the common needs of this increasingly diverse population? It is not surprising that a recent article on American high schools in The New *York Times* reports that there is a growing sense that the organizing principles of high schools must be changed (71).

Public Schools Out of the Mainstream

The New York Times article on high schools also states that high school students are isolated from other institutions of the community (71). The National Commission on Resources for Youth is quoted in a 1974 report as claiming that "in earlier periods, the home, the local community, and the place of employment furnished a variety of opportunities for youth to work, to make helpful contributions to family and community and to associate in other ways with adults. This situation has changed" (71).

Schools are being pushed out of the American mainstream in yet another sense. The effect of the baby boom was seen in the public schools in the 1940's through 1960's. Throughout, communities prided themselves on their commitment to high-quality public education. These babies grew up, married late, divorced, or didn't marry at all. The birth rate dropped and, with it, the tax base to support public education. Antitax measures along with a diminished birth rate have led, according to the National Center for Educational Statistics, to the closing of 9,868 schools between 1968 and 1977. In the last 12 years, the public school population dropped 9.8 percent, and it is projected to drop further before reaching a plateau in the middle of the 1980's (33).

Treatment and Intervention: Systems With Learning Problems

One of the longstanding theories in the field states that learning disabilities stem from a lack of integration between the hemispheres of the brain. This lack of integration also seems to describe the system of treatment and intervention for learning-disabled individuals in this country. The outcome is that the system—not in communication or supportive relation with itself— cannot learn effectively.

Lack of Communication and Support Within the Treatment and Intervention System

The current literature on learning disabilities abounds with examples of components of the system not working in concert. Parents of handicapped children are described as isolated (120), the social movement for services for the learning disabled is described as out of step with scientific investigation (8), researchers identify certain children as learning disabled while school districts do not (200), handicapped children are described as socially isolated (108), researchers are described as out of touch with practitioners (130), professional organizations are described as divided and adversarial (130), the specialists evaluating and prescribing for a given learning-handicapped child fail to communicate (114), and decision making in model programs for the learning disabled is variable and inconsistent (199). These are only some examples.

The failure to integrate Federal legislation and State propositions has severely compromised services for the handicapped. The accountability of the public schools to serve the handicapped has been dramatically increased by Public Law 94-142, while, at the same time, financial support for the schools has been severely cut. Massachusetts and California voted to cut property taxes, traditionally the financial basis of public education. Proposition 21/2 in Massachusetts, in addition to cutting local property taxes by 2,5 percent of the market value, eliminates a local school board's ability to determine its own budget. Massachusetts provides an excellent example of the lack of in-

tegration in approaching the handicapped: while on the one hand the State undercut the financial bases of the schools with Proposition 2 1/2, it also pioneered a model of special education services in 1972 with the enactment of Chapter 766. Many important aspects of Public Law 94-142 were patterned after Chapter 766 (131).

Many school districts face rising accountability and diminishing budgets. In addition, future legislation requiring increased accountability is likely. Assembly bill 2286 in California, for example, establishes that local education agencies must pay for the attorney of the party representing the handicapped child if the local education agency also employs an attorney to present its own case.

It could be said, then, that the system does not function as a well-coordinated unit. The great numbers of well-trained, well-intentioned people do not add up to a well-working whole. There seems to be no shared method toward accomplishing this end. The system consists of a tangle of institutions, dogmas, regulations, legislation, disciplines, professionals, and parents as well as the learning disabled themselves. Fragmentation not only characterizes the system, but also each of its parts. The identification, treatment, and intervention processes all share this attribute.

One could safely guess that, given fragmentation is great, communication within the system is far less than what it could be. Another way of saying this is that the system is not in communication with itself. Schon (18.5) offers this comment on services for the blind:

> The system will not learn what to do unless it becomes more capable of learning; it will not act on the basis of its learning unless it is made to do so with forces which are commensurate with its own resistance to change.

The "problem" and the "solution" are, in the words of Schur, ". . . little more than two ways of describing a single interwoven set of facts'" (187).

For these reasons, the system of schools, researchers, professionals, and agencies can be seen as a "learning disordered" system.

Official, Indirect, and Informal Intervention Systems

In a classic study of a social service system Schon (185) describes the "of ficial," "indirect, " and "informal" systems of services for the blind. Using Schon's analysis, the official service system for learning disabilities would encompass the following areas:

- education (Federal, State, and local, both public and private);
- mental health (same);
- vocational rehabilitation (mostly Federal and State);
- training of professionals (Federal, State, or private);
- research (supported by public and private funds); and
- interest groups of professionals and parents (private).

The "indirect" service system for learning disabilities includes the security and benefits of agencies dealing with social security, we] fare, health, etc. The "informal" service system consists of the benefits and services provided by families, friends, and community members. As in Schon's analysis of the "system for the blind, " one could probably state with confidence that the informal system, although impossible to describe in terms of financial cost, may be the largest system of all. practical wisdom also suggests that the effectiveness of services provided by the official and indirect systems may depend on the integrity of the informal system. For example, a child from a disintegrating family, without social supports, might be treated for a learning disability without being able to take advantage of that treament.

DIRECTIONS: TECHNOLOGICAL POSSIBILITIES
To "MAINSTREAM" THE SYSTEM

The development and use of technologies should be informed by the distinct nature of learning disabilities. Hard technology can be seen as speaking to certain aspects of a learning handicap; for example, a learning-disabled student might learn best with electronic multisensory instruction. Soft technology refers to aspects of the complex social context in which the hard technology exists. A possibility concerning soft technology might be the creation of programs for teacher training and support that enhance the effective use of school-based microcomputers (hard technology). The fragmented service system can be seen as seriously compromising the potential contribution of hard technology. Thus, the possibilities below include possible soft technological approaches that may determine the effective use of hard technology.

Develop Complementary Hard and Soft Technologies for Those With the "Indistinct Handicap"

Because learning disabilities are most often identified in individuals who are physically, emotionally, and intellectually within the "normal" range, the learning disabled are excellent candidates for self-help programs, The understanding many have developed of how to compensate with social and other skills can be used in developing soft technologies to support others with silent handicaps,

The "symptoms" of learning disabilities appear or disappear depending on the setting. A mismatch of setting and learning style is often interpreted as a learning disability, as well it may be. It is important to note that teaching approaches can be modified to enable the learning-handicapped student to learn much more effectively. Other modifications that can be made to match learning styles include choice of appropriate materials, shortened work periods, small student groups, and regular checking-in periods with the teacher during the day. Restructuring settings—both their requirements and their supports—can

mean that a learning disability is far less of a learning problem.

Because the learning profiles of the learning disabled show both strengths and weaknesses, hard technologies can be used to supplement native strengths insofar as they can exploit this range of abilities, talents, and interests. Those with visual-motor difficulties might use typewriters, tape recorders, or voice-activated word processors. Electronic advances, providing a wealth of alternatives to the written word, might not only make it easier for those with visual-perceptual problems, but may eventually make certain learning disabilities far less handicapping. They could be used to tailor information input and output to individual learning styles.

Task analysis, a method used in the field of learning disabilities for evaluation and program design, is a highly valuable soft technology. It is a tool for determining learning styles, One observes the learner in a series of systematically sequenced tasks to determine learning strengths and weaknesses and their interrelations. The idea is that learning strengths can be used to compensate for learning weaknesses. One learning style might be described as follows: visual-perceptual confusion tends to be compensated for by using strong verbal language skills and by saying the letters of confusing words aloud.

With the knowledge of a person's learning style, one can make informed choices about the use of both hard and soft technologies. Because everyone has learning strengths and weaknesses, task analysis is a soft technology appropriate for the heterogeneous classroom. Students could be grouped according to learning styles and academic needs. A program using task analysis integrated with a systems approach to educational setting, personality, and community was attempted in California (29),

"Mainstream" Classroom Teachers

With the radical change in the population of the "regular" classroom, classroom teachers find themselves in stressful situations every day. Their

training has been primarily for "regular" education, based on the assumption that only certain types of "normative" problems might appear. Previously, children with problems had been referred "out, " and specialists outside the classroom had often been responsible for them.

As Sarason (181) points out, classroom teachers and special education teachers traditionally were separated in training as well as in educational agencies. It had been assumed that the two student populations they serve were so different that integrating special and regular education was inappropriate.

With the passage of Public Law 94-142, the regular classroom teacher faces children requiring special education. Often, the classroom teachers are the central "deliverers" of the program delineated by the IEP. Yet they are still not centrally involved in diagnosis and planning, even though they are often the ones who have the most information about students and that gathered in a range of situations over a long time.

The generalist—the classroom teacher—is now required to be the specialist. The accountability of the job has increased immeasurably, just as the accountability of the school districts has increased. And, like the school districts, the classroom teacher often does not have the proper support or preparation to do the job.

The stress, the fatigue, and possibly the guilt of attempting a demanding job without adequate support or preparation appears to have had an isolating effect on classroom teachers. They are less likely to share information, more likely to feel that, because they are failing, they must hide the nature of their performance (not unlike learning-disabled students). Clinical experience tells us that being in situations in which one continually experiences failure weakens ties to others who might be of help.

Soft technologies in the schools could focus in part on "mainstreaming" the classroom teacher. The isolation of the classroom teacher **can be** ameliorated by taking actions like the following: 1) ensuring that the classroom teacher *is* present at IEP meetings, 2) setting up specific and regular times for specialists and classroom teachers to dis-

cuss the programs of children, 3) providing inservice training for the highly heterogeneous classroom, and 4) delineating job boundaries clearly. In addition, hard technologies like microcomputers can be used to help the classroom teacher individualize programs for a range of learning needs as well as reduce the time spent in paperwork.

"Mainstream" School Systems

One can make an educated guess that classroom teachers are not the only isolated people in the system that provides services for the learning-disabled population. The school system itself is also fragmented. Administrators—the personnel who are central to creating soft technologies for "mainstreaming" classroom teachers—must also be "mainstreamed. " They also are overwhelmed, overaccountable, and possibly plagued by self-doubt. Parents, observing overworked teachers or feeling disappointed by the unmet promise of the new legislation, often feel alienated from schools .

The effectiveness of hard technologies, new programs, and professional expertise are often seriously compromised by aspects of organizational life. Cowan (52) describes a case in which a school administration's failure to communicate with school principals first affected the commitment of the principals to a "new math" program and eventually the success of both a teacher and a student in the new program. The new math program was introduced by the principals to their schools with little investment. Teachers, feeling compelled to cooperate, agreed to spend *6* weeks of their summer in a new math training program. One of the teachers who least wanted to take part in the program was later faced with a number of students who needed more direction than the new teaching method provided. One of these students began to misbehave after weeks of not being able to grasp the new material. The child was referred to the school psychologist for a possible learn in deficit and a recommendation was made that the child enter therapy to "remove the emotional block to his learning. "

This example illustrates not only that a learning problem might be based in the interaction be-

tween child and educational setting, but also that expertise can be misapplied in certain contexts, and that an educational innovation can be rendered ineffective by administrative mismanagement. It is common for experts to be disabled by certain forms of administrative leadership and decision making. The quality of organizational life is often the most hidden and pernicious handicapping force on schools and service agencies and should inform the choices for technology development and use.

The isolation of the system's constituents is especially clear in IEP meetings. In these, parents often disagree with school personnel and with each other. The interdisciplinary evaluation teams are better described as multidisciplinary: each specialist gives a report, and the results of the reports remain unintegrated. The opinion of the classroom teacher may not be given sufficient weight. Often, with no one available to cover the class, the classroom teacher is not even present. Yet the IEP meeting is the only time that all the people planning the educational program of the learning-disabled child have a chance to meet.

School personnel with the same jobs could meet in small groups. Consultants with training in group processes could participate in the formation of these groups. The consultants could not routinely attend the groups, but serve as consultants to any given group when asked. The groups would of course not be therapy groups, but rather support groups in the work setting. After some time, horizontal connections could be made by forming groups of administrators, teachers, and special personnel. The purpose of these groups is not training, but to provide support and a meaningful context to the workplace.

Not a support group primarily, Project TECH (Training in Education Cooperation for the Handicapped) is a program of school personnel and parents to encourage cooperation in program evaluation and planning. Project TECH is part of the Special Education Resource Network, California Office of Special Education. Teams of parents and personnel from local school districts are trained in 3-day workshops and return to their communities to train others. This is a good example of community-based soft technology that addresses

the relationships of people and interests in the system for the handicapped (38).

Integrate Various Services for the Learning Disabled

The learning disabled suffer problems not only in school learning. The anecdotes about learning-disabled adults provide powerful testimony of the range of these difficulties. If such adults manage to circumvent the prejudice of potential employers, as workers they may be plagued by "accident proneness, " difficulties in reading charts and maps, mishearing directions, or slowness in completing tasks. Often these adults maintain patterns of dependency begun with parents and peers, Not being able to read makes one far more dependent, and not only in completing school tasks. Other tasks, such as finding a job, navigating through large buildings with titles on walls and doors, finding an apartment, or taking information over the phone, can also be overwhelming.

Case managers are needed to coordinate and integrate the contributions of specialists like remedial tutors, vocational rehabilitation counselors, and psychotherapists. Just as important, case managers can help the learning disabled to enter into community activities by using services and programs for the general population. Activities that recognize and develop the talents and interests of the learning disabled are as important or more important than services that speak only to their limitations.

The abilities of these individuals can be combined with the abilities of others through team structures, using the group to compensate for the weaknesses of individual members. In the novel *More Than Human,* Theodore Sturgeon describes a group of disabled children who find each other and create a working group by using their complementary strengths and weaknesses (197) This is also a kind of mix-and-match soft technology: matching person and person, person and setting, and person and task.

In his analysis of the service system for blind people, Schon (185) suggests "new models of integrated service" that would coordinate services relating directly to the handicap itself and those

relating to health, employment, recreation, or financial support.

Different forms of integrated services are necessary for different learning-disabled people, for their range of profiles is wide. Some learning problems may be primarily neurological, others primarily emotional. These different profiles mean that there must be separate, but similar and often overlapping, service systems.

Schon suggests that "all forms of integration would require the establishment and management of networks of service— that is, linked arrays of agencies. " Greater attention would be given to activities that mark the crossing of boundaries, such as those related to admissions, screening, and referral. "Tracking" individuals through the system, ideally with the help of coordinated computer use throughout the agencies, would show what agencies were meeting what needs. The leadership in this system would largely provide feedback about the states of the system, which would help the system self-regulate.

Establish Communication Between Researchers and Practitioners

One of the characteristics of the system for the learning disabled is that what is considered of dubious value by researchers is often considered best practice by practitioners. An example, school practitioners' apparent unawareness of a decade of research seriously questioning the "perceptual hypothesis. " This hypothesis, which assumes the existence of underlying perceptual abilities, *is* the basis of much diagnosis and planning for learning-disabled students. Additional training may be necessary but not sufficient to close this gap between researchers and practitioners. It is more likely that ongoing work groups of researchers and practitioners supported by State and Federal agencies or private foundations would establish effective channels of communication.

Consider Developing New Organizing Principles for the Schools

As long as "mainstreamed" classrooms are organized around the written word, "mainstreamed" students will not be truly integrated. This is very likely true, regardless of whether these students are the learning disabled or non-English-speakin~ Chicanos, Chinese, or Vietnamese. As a greater percentage of students in the "mainstream" can't read, one must question the wisdom of using reading as the focal point of classrooms. The idea behind "mainstreaming" is harmonious with democratic principles: minorities and the handicapped should learn in the same social communities as "regular" children. Because social development is central to "main streaming," the basis for "mainstreamed" classrooms should be something the children do actually share—whatever that may be. Academic instruction should take place in small groups, organized by learning levels, styles, and **needs.**

Consider the Contributions of Learning-Disabled People

When we want to see the future, we often go to experts. An alternative method is to go to those who represent more marginal regions of the culture. Their perspectives are sometimes those of the mainstream to come. The learning disabled, many of whom have learned to survive successfully, to establish their own networks, and to have full lives without knowing how to decode the written word, may well be the source of ideas for future developments.

Rapid advances in technology often dictate policy rather than the reverse. Yet, if we look to the life experiences of learning-disabled people in schools and beyond, they may provide guides for using technologies that are both effective and humane.