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ABSTRACT

This volume presents 12 papers that address the increasing shift toward functional and noncategorical approaches to special education. The papers are: (1) "Origins of Categorical Special Education Services in Schools and a Rationale for Changing Them" (Jim Ysseldyke and Doug Marston); (2) "Reform Trends and System Design Alternatives" (Dan Reschly and W. David Tilly, III); (3) "Functional Analysis Assessment as a Cornerstone for Noncategorical Special Education" (Frank Gresham and George H. Noell); (4) "Noncategorical Special Education Services with Students with Severe Achievement Deficits" (Mark R. Shinn, Roland H. Good, III, and Chris Parker); (5) "Noncategorical Approaches to K-12 Emotional and Behavioral Difficulties" (Frank M. Gresham); (6) "Transition from School to Adult Life" (Cheryl Hanley-Maxwell); (7) "Services to Young Children: Functional/Behavioral Conceptions of Services to Young Children" (Carla A. Peterson); (8) "Functional Approaches to Low Incidence Populations" (Diane M. Browder, Timothy Minarovic, Edward Grasso); (9) "Developing Effective Program Plans for Students with Disabilities" (Lee Kern, Glen Dunlap); (10) "Curriculum-Based Evaluation: Finding Solutions to Educational Problems" (Kenneth W. Howell, Scott C. Hazelton); (11) "Providing Noncategorical, Functional, Classroom-Based Supports for Students with Disabilities: Legal Parameters" (David P. Prasse; Judy A. Schrag); and (12) "Disability Determination in Problem Solving Systems: Conceptual Foundations and Critical Components" (W. David Tilly, III, Daniel J. Reshchly, Jeff Grimes). (Individual chapters contain references). (DB)

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Forward

Special education in America has progressed steadily throughout the past 23 years. During the early years after passage of the Education of the Handicapped Act (P.L. 94-142) a major focus of special education was on finding children with disabilities and providing them with a free, appropriate, public education. In 1975 approximately one million children with disabilities did not receive an education, and it was a major philosophical and public policy initiative to remediate the situation. To this end, states and educational service agencies defined categorical criteria for special education eligibility based on the new law and the best thinking measurement science had to offer at the time. The special education systems that resulted had significant and important positive ramifications for individuals with disabilities and their families. It also contained, at a structural level, considerable shortcomings that would become increasingly salient over time. Throughout the next two decades, an increasing number of individuals with disabilities were identified and provided with special education and related services. At the same time, increasing attention was being paid by educators and the public to the results being attained by the education system, including special education.

One thesis of this volume is that for special education to continue evolving towards an outcomes-oriented system, fundamental rethinking of the identification, assessment and service delivery system is required. Much of this work has begun in the professional literature. With the passage of the Individuals with Disabilities Education Act Amendments of 1997, Congress provided important foundations for implementing many of these improvements on a wide scale. It is the purpose of this monograph to synthesize many of the key ideas underlying a shift toward functional and noncategorical approaches to special education.

Many people contributed significantly to the quality of this product. The editors would like to acknowledge the support of the Bureau of Children, Family and Community Services (CFCS) in the Iowa Department of Education (DE) throughout creation of this product. We also want to thank Dr. Jeananne Hagen, Chief of the Bureau of CFCS for her support, vision and leadership. The editors thank and recognize Maureen Reilly, of the Iowa DE, for her exceptional proofreading skills which she lent to each chapter in this volume. Also, we want to extend sincere and deep gratitude to Mary Bartlow of the Iowa DE for her talent, perseverance and many hours of labor in laying out and producing this volume. Finally, we want to thank our colleagues, the chapter authors, for their enduring contributions to improved education for students with disabilities. It is through their work that many of the possibilities presented in this work can translate into improved results.

Dan Reschly
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Origins of Categorical Special Education Services in Schools and a Rationale for Changing Them

Jim Ysseldyke
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Chapter 1

INTRODUCTION

Approximately five million students received special education services during the past academic year (U.S. Department of Education, 1996). In most states, a categorical classification system is the fundamental organizing structure for special education today (Ysseldyke & Algozzine, 1995). Students are considered exceptional when they (1) meet the criteria for being classified as exceptional, and (2) require a modification of school practices or services to develop to maximum capacity (Ysseldyke & Algozzine, 1995). Enrollment in special education, considered instruction designed for students with disabilities or gifts and talents who have special learning needs, has been growing very rapidly since the late 1970s when there were less than 300,000 students identified as disabled. Students are permitted to receive special education services when professionals decide they meet specific eligibility requirements. Decisions about eligibility typically have been based on student performance on tests. In this chapter we describe the origins of categorical special education services in schools, identify the assumptions that underlie categorical practices, and examine the extent to which there is empirical support for the assumptions. We then describe the advantages and disadvantages of categorization systems, provide a rationale for alternatives to categorization, describe five alternatives, and examine the effectiveness of one alternative model. We conclude that use of categorical practices is and will continue to be problematic, that it is not possible to justify continued use of such practices, that there are alternatives that are superior, and that schools must move in directions of implementing such alternatives. This will require strong leadership on the part of personnel in state departments of education. Special education service delivery practices in Iowa have always been on the cutting edge, and personnel in the Iowa Department of Education have long played leadership roles in conceptualizing, implementing, and evaluating the effectiveness of innovative practices.

WHERE AND HOW DID THE CATEGORICAL APPROACH ORIGINATE?

Students with special learning needs always have been (and always will be) a part of the educational system in America. But before they were required to attend school (around 1850) they did not attract much attention. In fact, they often were excluded from schools and sent to separate institutions in order to "help them." When all students were required to attend school, and many failed to profit from their experiences in school settings, or when teachers and other school personnel argued that the presence of exceptional students was interfering with the education of other students and/or hindering the education of the exceptional students themselves, physicians and early special educators developed a formal alternative to the regular education system.

Ysseldyke and Algozzine (1995) describe the school scene in the beginning of the twentieth century. Students had two primary choices: they were educated in a lock-step graded class or in an ungraded special education class. Administrators of that era saw special classes as clearinghouses for students who would otherwise be going to institutions for physically, mentally, or morally deviant members of society. What led to this?

The very first special placements were for students who were deaf or hearing impaired. Prior to the nineteenth century there were no organized attempts in the United States to educate students who were deaf. Moores (1987) notes that parents who had the financial resources sent their deaf children to Europe to be educated. The first school for deaf students in the United States was established by Thomas Gallaudet in Connecticut in 1817. The institution was called the American Asylum for the Education and Instruction of the Deaf and Dumb. In 1818, the New York Institution for the Instruction of the Deaf and Dumb was established, and, in 1820, the Pennsylvania Institution for the Deaf and Dumb began. In 1857, the Columbia Institution for the Deaf and Dumb was established in Washington D.C. (it eventually became Gallaudet University). These early institutions were

set-aside structures where students could be sent in order to "help" them. In 1869, day school classes were begun for students who were deaf in Boston. These were the very first special education classes for students with any kind of disability.

The first institutional programs for students with visual impairments—the New England Asylum for the Blind and the New York Institution for the Blind—were started in 1832. Five years later, the first residential school for students who were blind opened in Ohio. It was not until 1900 that the first day school classes for students with visual impairments were held in Chicago. In 1911, New York became the first state to make education of blind students compulsory. In 1913, Boston and Cleveland started classes for students who were partially sighted.

In the mid 1800s, schooling was compulsory, and large numbers of students failed to profit from their educational experiences. Not all failing students were deaf, hearing impaired, blind, or visually impaired. Not all failing students could be sent to institutions or residential schools for individuals with sensory impairments. Physicians and school personnel argued that many students failed because they lacked the cognitive capability to be successful. The students were called by many names (e.g., feebleminded, idiots, morons, mentally defective, and mentally retarded), and many were sent to set-aside structures like institutions and other residential settings. The nation's first residential school for individuals with mental retardation was established in 1859 in South Boston. It was called the Massachusetts School for Idiotic and Feebleminded Youth. Treatment was restricted to this kind of institution until 1896, when the first public school day classes for mentally retarded pupils were started in Providence, Rhode Island. The push for residential institutions as a replacement for custodial institutions, and the establishment of public school classes for students called mentally retarded resulted for the most part from the efforts of advocates. For example, Dorothea Dix gave a famous speech to the Massachusetts legislature in 1848 decrying the inhumane treatment in institutions for the retarded or insane. Steps were taken to clean up institutions and to move their residents to more "normalized" settings. Such advocacy and response has occurred repeatedly throughout the history of special education. Witness for example the results of the lawsuit filed against the state of Pennsylvania by the Pennsylvania Association of Retarded Citizens in 1970. Significant efforts followed this lawsuit to locate all students with mental retardation, to enroll them in schools, and to provide them [illegible] free and appropriate education.

Categorical services were created largely in response to failure of large numbers of students to profit from compulsory schooling. School personnel and/or physicians created set-aside structures (institutions, schools, or separate classes) where students with disabilities could be sent to "help" them. Over time, as large numbers of students failed, or as teachers had difficulty either meeting the needs of or tolerating increasingly diverse groups of students, new conditions (categories) were created, and new set-aside programs were established. Consider the following very abbreviated history.

As large numbers of students failed, educators explained failure by within-student conditions. Set-aside structures were developed to house or educate these deviant, defective, or deficient students. Early on, the settings were for students with sensory impairments and cognitive deficits. As more and more students failed, new explanations arose. School personnel argued that some students failed because they were morally, behaviorally or socially deficient. Services and a category were created for students who were emotionally disturbed. Still, large numbers failed. School personnel attributed the failure of some of these students to speech and language disorders, a category was created, and special education services were provided to students who met the necessary eligibility criteria. Still, large numbers failed. School personnel attributed the failure of some of these students to deficient environmental experiences. Categorical programs (for the most part early and compensatory in nature) were created for students who were "disadvantaged" or "deprived." Still, large numbers failed. Categorical programs were created for students who were bilingual, and vocational programs were created for students for whom school personnel predicted a rough road in an academic track. Still, large numbers of students were failing.

In the mid 1960s, many different kinds of categorical programs were in use in schools. Still, large numbers of students failed to profit from their educational experiences. Large numbers of students had difficulty learning, yet they did not demonstrate the deficits of the day. A name was assigned to these students, and when Samuel Kirk spoke to a group of their parents in 1967, he used the term "Learning Disabled" to describe the students. Another condition was born. Interestingly, the definition of the condition was one of exclusion. This is how the condition was (and still is) defined:

> Children with specific learning disabilities means those children who have a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disor-

der may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. Such disorders include such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage (p. 65803).

The condition of learning disabilities (LD) has become the fastest growing and most extensive disability category. In 1995-96 school year, 2.5 million students were identified as LD and received special education services. Since the addition of learning disabilities as a categorical condition, two others have been added: traumatic brain injury and autism. Today there are 13 categorical conditions under which students receive services. In addition, students identified as having an Attention Deficit Disorder are eligible for services under section 504 of the Rehabilitation Act.

ASSUMPTIONS UNDERLYING CATEGORIZATION

Categorization was not and is not a capricious practice. Rather, it is based on a set of fundamental assumptions.

Universality/Specificity

Each disability category is presumed to be caused by a within-student deficit, disability, or dysfunction. And, it is assumed that the internal condition is what causes low level academic performance. It is assumed that all members of a condition have at least one thing in common (a universal trait or characteristic), and that there is at least one trait or characteristic unique or specific to the condition. In practice, it is assumed that those who evidence a condition will exhibit the characteristics specified by states or federal agencies as indicative of the condition.

Reliable and Valid Identification and Differentiation of Categories

It is assumed that it is possible to use tests to identify students who demonstrate a condition, and that such identification can be done reliably and validly. It is assumed that there are reliable psychometric differences between students who evidence a condition and those who are normal or low achieving but do not evidence the condition. Further, it is assumed that it is possible to reliably differentiate students who are members of one category from those of another category.

Students with Comparable Conditions Will Profit from Homogeneous Grouping and Instruction by a Teacher Trained Specifically to Teach the Condition

It is assumed that students who demonstrate the same condition have similar instructional needs, and that these needs can be met through similar instructional treatments. A corollary of this assumption, then, is that students would profit from approaches in which they are grouped together by condition and taught by a teacher specially trained to teach students who evidence the condition.

Students with Different Conditions Learn Best When Taught by Different Methods

This is the assumption that there are aptitude by treatment interactions. It is assumed that students who evidence different characteristics will learn best when they are taught by specific methods. For example, one might assume that students who are auditory readers would learn best when taught by auditory methods, while those who are visual readers would learn best by visual methods. It is assumed that knowledge of student characteristics (usually test-identified) will lead to application of treatments with known outcomes. Cromwell, Blashfield and Strauss (1975) indicate that the only valid diagnostic paradigms are ones in which knowledge of individual characteristics enables professionals to assign those individuals to treatments with predictable or known outcomes.

THE VALIDITY OF THE ASSUMPTIONS

In the discussions that follow, our focus is on the 93% of the disability population who evidence conditions other than sensory disabilities, multiple disabilities (e.g., they are deaf and blind) and severe mental retardation.

Universality/Specificity

Evidence on the relationship between disability conditions and low level academic performance is, for the most part, correlational in nature. Researchers have been able to demonstrate that conditions, characteristics and achievement co-vary. For example, many students with learning disabilities score low on perceptual motor tests and also on measures of academic achievement. The evidence is correlational only, but has been interpreted by some in a causal manner.

There are several investigations of the extent to which students who are classified and served meet the state or federal criteria for being classified and served. Garrison and Hammill (1970) found that 66% of students classified as ***educable mentally retarded (EMR) did not meet EMR*** criteria. Norman and Zigmond (1980) found no specific defining characteristics for LD. Shephard, Smith, and Vojir (1983) found that less than half of 790 Colorado students with LD met federal criteria for LD.

Algozzine, Christenson, and Ysseldyke (1982) showed that 92% of those referred are tested and 72% of tested students are declared eligible. Ysseldyke, Vanderwood and Shriner (1997) report the results of a 1994 replication of this study showing identical rates.

Reliable and Valid Identification and Differentiation of Categories

There has been significant debate about the extent to which there are reliable and valid psychometric or functional differences among disability categories. Researchers have challenged the assumption that those who evidence a specific condition (like emotional disturbance) can be differentiated reliably and validly from those who do not evidence the condition. They have also challenged the assumption that the students can be differentiated from those considered normal, low achievers, or those who evidence another condition.

There is a very large body of research showing that students identified as disabled can be differentiated from those considered normal. For example, students identified as mentally retarded earn lower scores than normal on intelligence tests; those identified as emotionally disturbed show more problem behaviors than normal, and so forth. For the most part, diagnostic personnel are not interested in or called upon to decide whether a student is normal or disabled. Rather, they are asked to sort among all of those students who are experiencing difficulties in school the individuals who are eligible for special education services. With this in mind, several investigators have conducted research on classification.

Ysseldyke, Algozzine, Shinn, and McGue (1982) contrasted the psychometric performance of students considered LD with those considered low achievers (LA). They demonstrated very significant overlap in test performance of the two groups, and argued that the groups could not be differentiated reliably using psychometric measures. Shinn, Deno, Ysseldyke and Tindal (1986) demonstrated that the same students studied by Ysseldyke et al. (1982) did differ asures of their functional performance in classrooms. , Fuchs, and Scruggs (1994) used a meta-analysis procedure to re-examine the Ysseldyke et al. data. They argued that the LD group did indeed perform more poorly than the LA group. Algozzine, Ysseldyke, and McGue (1995) responded to the Kavale et al. (1994) paper, demonstrating that inappropriate statistical procedures had been used in the reanalysis.

Gresham, MacMillan, and Bocian (1996) investigated differences between students who were low achieving, learning disabled and mildly mentally retarded (MMR). They administered 41 measures of ability, academic achievement, social skills, problem behaviors, academic engaged time, perceptual-motor skills, and gathered data on school history. There were large differences in predicted directions and areas between members of the three groups. Students with learning disabilities earned higher scores than the other two groups on measures of ability. Low achieving students outperformed the other two groups on measures of academic achievement. There were no other differences among groups. Gresham et al. (1996) demonstrated that 61% of the LD group could be differentiated from the LA group, 68.8% of the LD group could be differentiated from the MMR group, and 67.5% of the LA group could be differentiated from the MMR group. Psychometric techniques for differentiating between groups are not highly reliable.

Algozzine et al. (1995) argue that differences among LD and LA students in overall achievement test performance are not sufficient enough to suggest that many of these students have qualitatively different instructional needs than many of their LA peers. We argue that diagnostic efforts to differentiate groups should be diminished, and that instructional efforts to help all students achieve better outcomes should be significantly increased.

Students with Different Conditions Learn Best When Taught by Different Methods

It is assumed that individual differences among members of the disability category are directly linked to the extent to which they profit from different kinds of instruction. Or, it is assumed that there are specific instructional strategies or tactics that work uniquely with members of specific disability categories; that is, that performance on aptitude measures interacts with treatments to produce different kinds of outcomes ***(Aptitude x treatment interactions-ATIS).*** Researchers have shown that there ***are*** instructional practices that work with students with disabilities, and that there ***are*** treatments that work across disability conditions. They have not shown that there are specific instructionally relevant ATIs.

In the many studies of instructional interventions for

students with disabilities, six approaches have been studied most frequently. Approaches found effective across most categories of disabilities include direct instruction (Gersten, Woodward, & Darch, 1986), precision teaching (Lovitt & Fantasia, 1985; White, 1986), instructional consultation (Fuchs & Fuchs, 1992), mnemonic instruction (Mastropieri, Scruggs, & Fulk, 1990), peer tutoring (Coates & McLaughlin, 1992; Jenkins, Jewell, Leicester, O'Connor, Jenkins, & Troutman, 1994), and learning strategy instruction (Bulgren, Schumaker & Deshler, 1989).

There are specific instructional approaches which are effective in teaching specific kinds of content (e.g., reading or math). For example, previewing and reading practice techniques are effective in improving oral reading fluency (Rose & Beattie, 1986). Self-instructional strategies, both those using mnemonics and steps, have produced positive results in teaching students to write (Danoff, Harris, & Graham, 1993). Mastropieri, Scruggs, and Shiah (1991) report the results of a meta-analysis of 30 separate studies of ways to teach math to students with learning disabilities. Approaches studied included self-instruction, goal setting, mnemonic strategies, specific cognitive strategies, cognitive behavior modification, and computer assisted instruction. Nearly all of the approaches produced positive results.

With the exception of instructional approaches that work with sensory categories of students with disabilities, there are no category-specific effective approaches. There is virtually no research evidence illustrating that there are specific approaches that are effective only with specific categories or in specific settings. There are few, if any, aptitude by treatment interactions.

Knowledge of Student Characteristics Leads to Treatments with Known Outcomes

Recall the argument of Cromwell, Blashfield, and Strauss (1975), that the only valid classification systems are those in which historical information (A) or data on student characteristics (B) leads to treatments (C) with known outcomes (D). The only valid classifications paradigms are ACD, BCD, ABCD paradigms. With the exception of some genetic conditions (like PKU), which, if diagnosed, lead to institution of treatments with known outcomes, there are few valid test-based diagnostic paradigms in special education.

SUMMARY

Elaborate procedures for sorting and declaring students [illegible] ble for special services have been developed. Empirical evidence supports the conclusion that effective interventions exist for these students; however, the practices used to sort these students into special education eligibility categories have been shown to be limited, and the effective interventions have been shown to work in settings other than special education classrooms. While empirical evidence indicates that interventions work with specific groups of students, there is no reason to believe they will not work with other groups of students (both with and without disabilities) as well.

ADVANTAGES AND DISADVANTAGES OF CATEGORICAL APPROACHES

Twenty years ago, the Project on the Classification of Exceptional Children was formed to conduct an extensive review of how exceptional children are classified and labeled (Hobbs, 1975). While the project results may be dated, it is clear the work of this group remains relevant today. Specifically, the chapter written by Goldstein, Arkell, Ashcroft, Hurley, and Lilly (1975) provides a summary of the arguments for and against the categorization of students.

Goldstein et al. (1975) identified four advantages of the present classification systems. First, some systems of categorization provide clear inclusion and exclusion criteria, which decreases ambiguity and leads to better communication among educators. Second, at times the labeling of the student offers an account of the child's physical symptoms which may have important instructional ramifications. Third, labels and categories lead to administrative structures for delivering services to these students and are often a convenient management tool for funding purposes. Fourth, student labels and categories have been useful in attaining public and government support for special education services.

These researchers also described a downside to labeling and categorization, and identified a series of disadvantages. First, labeling systems often reinforce making overgeneralizations about students with disabilities. Second, the categorization system "reifies" the labels. Third, at times the categorical approaches downplay the interaction of the student and environment; instead focusing on within-child causes. Fourth, labels remove "the burden of proof" for student learning from teachers. Fifth, categorical approaches do not produce better instructional planning for students. Sixth, categorical service delivery is often a "one-way" street for students, with little opportunity to return to general education settings.

Let's examine the Goldstein et al. advantages and disadvantages in the context of the 1990s. Do these premises

remain accurate or has the changing structure of special education changed these conclusions?

Arguments Supporting Categorical Approaches

Over the past 20 years much has been written regarding the advantages of categorical approaches.

Clear inclusion and exclusion criteria. The notion that categories of disability provide inclusion and exclusion criteria that clearly delineate who is eligible for special education has been repeatedly challenged for the "mild" disability areas, and left relatively untouched in the "moderate" to "severe" areas. In the area of learning disabilities the work of Ysseldyke and his colleagues (1982) demonstrates the difficulties in making the differential diagnosis of learning disabilities for students experiencing academic difficulties.

Important instructional ramifications. In its analysis of overrepresentation of minorities in special education the National Academy of Sciences reported that labels do not necessarily mean better instruction for students (Heller, Holtzman, & Messick, 1982). This group concluded, "It is the responsibility of the placement team that labels and places a child in a special program to demonstrate that any differential label used is related to a distinctive prescription for educational practices that lead to improved outcomes" (p. 94). In his analysis of the progress of mild mental impairment (MMI) and LD students receiving special education instruction, Marston (1987) discovered that student label or teacher certification had no impact on the degree to which these students improved during the academic year. Morsink et al. (1987) had similar findings.

Administrative structures for delivering services and funding. When special education programs for students were first developed in this country, new administrative arrangements for these services were developed. Not surprisingly, the need to organize service delivery for special education students conformed to existing categories of disability. This not only helped establish the legitimacy of these new categories of exceptionality, but helped secure funding. In the past 10 years this notion has been repeatedly challenged. Reynolds et al. (1987) have offered the opinion that the proliferation of special education programs has resulted in a fragmentation of services that does not lead to the best instructional environments for children. More recently, the National Association of State Boards of Education (NASBE) (1992) recommended that, "State boards, with state departments of education, should sever the link between funding, placement, and handicapping label. Fund- quirements should not drive programming and place- lecisions for students" (p. 5).

Public and government support. Perhaps the most effective argument for labels is its usefulness in communication to the public of the special needs of students with disabilities. There can be no denying that categorical labels provided a successful "rallying cry" for groups working for government support and educational financing in the 1970s. A current example is the discussion of ADHD as a separate category of disability.

Arguments Not Supporting Categorical Approaches

Does not lead to improved instruction. Goldstein et al. (1975) noted that while classification systems have been successful in other sciences, they do not necessarily lead to improved instruction. In most cases the student's label does not specify how the child should be taught. Lovitt (1976) likened special education's system of labeling to a grocer who stocked all of the items in his store by color. Foods that are white would be place together. Foods that are yellow would be grouped. Obviously, such a system would have little use for the customer. Lovitt (1976) argues disability labels have little relevance to instruction.

Reification of labels. The intended use of most labels in special education has been the description and communication to others of the student's primary difficulty. However, with time, labels may take on an explanatory role rather than provide descriptive information. This reification of the label not only provides little information about instruction, as pointed out above, but may also lead to circuitous reasoning about students. "To say, on the basis of the test score, that the child has not achieved well because he or she is mentally retarded is tantamount to saying, 'He/She has not achieved well on the test because he/she has not achieved well on the test'" (Deno, 1978, p. 25).

Ignores the interaction of the student and environment. Labeling systems often place the problems of the learner inside the student and ignore contributions from the environment. Ysseldyke and Christenson (1988) agree and conclude that learning difficulties are not the sole property of the child and are often characteristic of the classroom environment. Howell (1986) cites our use of assessment instruments as a prime example and argues, ". . .if the ultimate goal of evaluation is to alter current instructional practice, not merely to describe or make predictions about it, the greatest amount of attention should be directed toward variables that have the most impact on the interaction and are easier to alter" (p. 325).

Removes "the burden of proof." Finally, Goldstein et al. (1975) point out that labels may remove the "burden of proof" from the teacher. A teacher frustrated by the lack of progress of his or her student may possibly rationalize

poor student progress as a function of the student's diagnosis. These researchers suggest moving away from child-centered assessment and labeling systems will help teachers focus on student and classroom environment variables.

REFORM EFFORTS RELATED TO ELIGIBILITY FOR SPECIAL EDUCATION

In this section we discuss attempts around the country to reform special education service delivery, specifically issues related to assessment and eligibility. We describe five programs, at both SEA and LEA levels, in which alternative approaches to identification have been implemented. These sites are Minneapolis Public Schools, Florida's Project ACHIEVE, Iowa's Renewed Service Delivery System, Illinois' Flexible Delivery Systems, and Kansas' Alternative Assessment Waivers.

Minneapolis Public Schools

Over the last three years the Special Education Program of the Minneapolis Public Schools (MPS) has been concerned about categorical approaches for serving students with disabilities. Four major questions have surfaced as our staff has discussed how we can improve delivery of services to all students:

1. What can be done to improve the special education ***assessment*** model that may, at times, misclassify students, and often students of color, as disabled and needing special education?
2. What can be done to ensure that students, with and without disabilities, are receiving the most ***appropriate interventions*** for academic and behavioral difficulties?
3. Can we reduce the use of the ***stigmatizing labels*** for children receiving special education?
4. How can we reduce the ***disproportionate*** numbers of students of color receiving special education?

The department has addressed these issues in several ways. First, regarding the assessment bias question, during the 1980s our department de-emphasized the use of IQ tests in determining the eligibility of students needing special education. Over this period staff reasoned that IQ tests, while at times helpful for learning about student learning, were often inappropriate for identifying the unique needs and potential of many MPS students. As a result, the IQ test was viewed as just one of many sources of information regarding a student's academic strengths and weaknesses. The ***IQ test was not to be considered a primary determiner*** of student eligibility and was never an MPS requirement of assessment.

Second, with respect to determining if interventions for students with disabilities are working, the MPS special education department instituted the Curriculum-Based Measurement Model (CBM; Deno, 1985) for the purpose of measuring student progress and evaluating the effectiveness of special education interventions.

Third, the department adopted a philosophy of providing cross-categorical services with the idea of de-emphasizing the use of labels, particularly in the "mild disabilities" areas.

Fourth, the department started to examine disproportion of ethnic students in special education and began a dialogue with parent and advocacy groups regarding this issue.

With these efforts established, the MPS Department of Special Education entered the 90s confident it could provide unbiased assessment, effective interventions, deliver services without the use of derogatory labels and reduce disproportion of minorities in special education. However, at the same time, the Minnesota State Board of Education adopted policy changes which ran contrary to some of these aspirations.

Alarmed at the growth rate of special education throughout the state of Minnesota, legislators and government officials were understandably concerned about rising expenditures. Many of these officials concluded an "objective set of criteria" was necessary for determining eligibility for the eleven disability categories. It was reasoned that if local education agencies (LEAs) complied with strict criteria the growth rate would be curbed. One solution was to require, by Minnesota Statute (M.S.), the use of IQ tests in the eligibility criteria for learning disabilities (M.S. 3525.1341: Specific Learning Disability) and **mild mental impairment (MMI) (M.S. 3525.1333: Mental Impairment Mild-moderate)** categories. By following discrepancy formulas requiring the IQ tests, LEAs would help solve the statewide growth problem.

While MPS staff conceded that growth rates of special education students around Minnesota needed examination, department staff did not agree with the proposed methods of the State Board of Education. Specifically, MPS objected to the required use of "regression formulas" for determining LD eligibility and "objective criteria" for MMI. However, in 1992, the Minnesota State Board of Education put into rule Special Education entrance and exit criteria that employed these methods. Adherence to these new criteria created serious concerns among Minneapolis Public Schools staff, parents, and community stakeholders. Specifically, many questioned the required use of IQ tests for purposes

of placing students in special education services, such as specific learning disabilities and mild mental impairment. In fact, the debate spilled over into local newspapers.

Problems With IQ Tests and LD Determination

Intelligence tests often create misconceptions about student ability because of their discriminatory nature (Larry P. v. Riles, 1977, 1984; Galagan, 1985). With respect to the representative nature of intelligence tests, we examined the extent to which popular IQ tests included minority students in their standardization samples and compared those figures with the percentages of minority students in Minneapolis. For example, the Minneapolis Public Schools has an enrollment of approximately 45% African American students and 7.4% Native American students. However, the WISC-III, the Stanford-Binet, the K-ABC, and the Woodcock-Johnson-Revised range from about 14-17% African American students and 0-1.7% for Native American students in their standardization samples. We asked the question, "Are the norms from these tests representative of the MPS student population?"

Further, many researchers now criticize the role of intelligence tests for identification of students with learning disabilities (Siegal, 1989; Fletcher, 1992). So controversial is the issue that in 1992 the *Journal of Learning Disabilities* provided a special series on the topic and published several articles questioning the use of IQ tests in placing LD students. In addition, Macmann and Barnett (1985) showed that when LD eligibility decisions were made using either of two IQ tests and two achievement tests, there was only 20% agreement on classification decisions. Heistad (1988) showed that only 50% of those students classified as LD using the new state rules would be identified as LD upon readministration of the exact same IQ and achievement tests.

Problems with IQ Tests and Determination of Mental Impairment

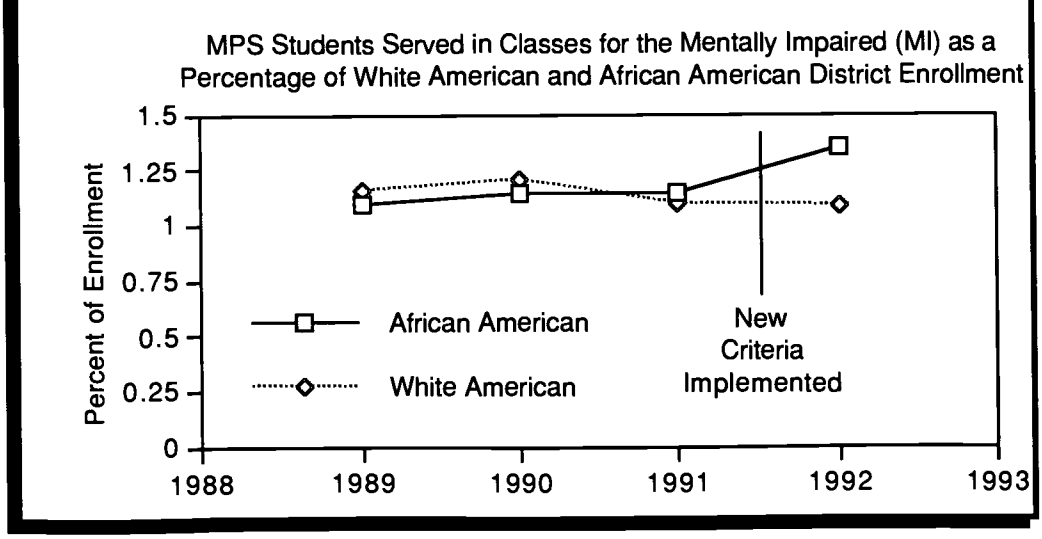
With respect to the assessment and identification of mentally impaired, the National Academy of Sciences concluded, "We can find little empirical justification for categorical labeling that discriminildly mentally retarded children from other children with academic difficulties" (Heller, Holtzman, and Messick, 1982). These authors also raised serious concerns about using intelligence tests for placing students in the mentally impaired category. They observed that intelligence tests are heavily relied upon and that, "The balance that is struck between IQ and other measures is likely to have significant consequences for the proportion of minority children placed in educable mentally retarded (EMR) classes, since minority children consistently score lower on standardized tests of ability than do white children . . .. If IQ tests were given to all children and IQ scores were applied mechanically as the sole criterion for EMR placement, the resulting minority over representation would be almost 8 to -1." In Minneapolis implementation of the IQ test requirement, as shown below, resulted in a 60% increase in African American enrollment in classes for mentally impaired students. New criteria developed by the American Association of Mental Retardation (AAMR, 1992) supports a multidimensional approach to assessment, such as the one proposed here, rather than focusing on IQ scores.

Impact of New Criteria in MPS

What was the result of implementing the new criteria in MPS? MPS program evaluators noticed several trends related to the required use of IQ tests. First, with regard to eligibility for mental impairment (MI) classes, the proportion of white Americans identified as MI did not change. However, as shown in Figure 1 below, an increase of approximately 60% was apparent for African American students.

Second, the amount of time school psychologists spent

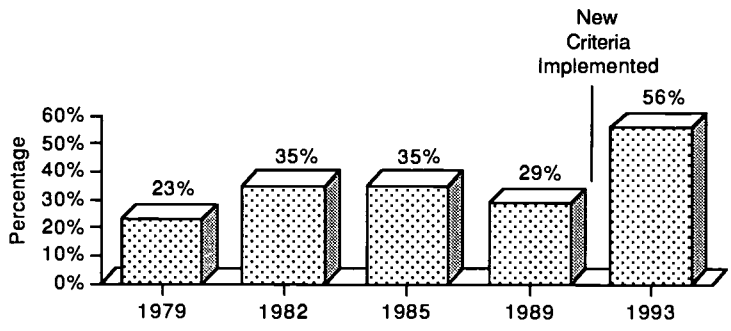
Figure 1. MPS Students Served in Classes for the Mentally Impaired (MI) as a Percentage of White American and African American District Enrollment



in testing increased dramatically. As shown in Figure 2, approximately one third of school psychologist's time was spent in testing before the required use of IQ tests. This gave psychologists more time to work directly with students and consult with teachers and parents. However, the implementation of the new criteria in 1992 resulted in almost doubling their time in testing.

Third, after the implementation of the new criteria, we examined the average IQ-Achievement discrepancies of referred African and white American students in our district. The results showed the average reading achievement was approximately the same for both groups, almost two standard deviations below the mean. However, the discrepancy scores of white American students (18.2 standard score units) was significantly higher than African American students (12.2 units). These data, which are similar to Siegal's (1989), indicate that while the referred African and white American students had roughly the same level of reading difficulties, the discrepancy formula would actually identify fewer African Americans than white American students as learning disabled. It appeared to MPS staff that the new criteria for African American students would over identify them as mentally impaired and under identify them as learning disabled.

Figure 2. Time School Psychologists Spent in Testing



Fortunately, the Minnesota State Board of Education, under the provisions of M.S. 120.173, allows school districts to request implementation of experimental programs. Given this opportunity to utilize a different approach, the Minneapolis Special Education staff, building on previous department philosophy, began to develop an alternative model for nondiscriminatory assessment and noncategorical labeling of students with mild disabilities. The proposal included a multidisciplinary team approach to functional assessment that transcends general and special education and leads to intensive help for students who need extended instructional support. This "Problem-Solving Model" was designed to address many of the aforementioned concerns.

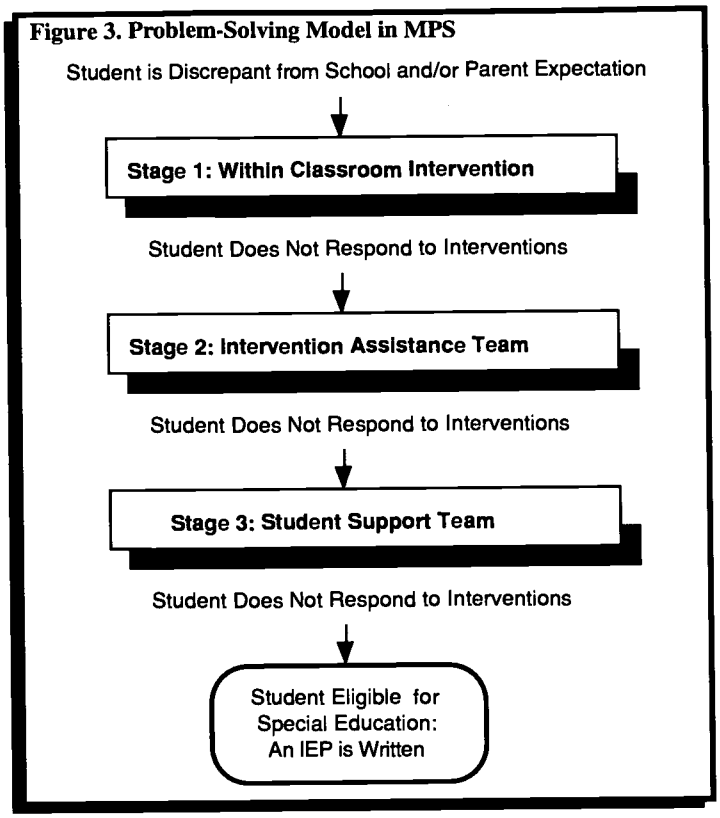
The Problem-Solving Approach

The traditional approach results in tests being used to determine eligibility for service, even though these tests often have little relevance to instruction. Recent court cases show that assessment must relate to instruction. In a review of *Marshall et al. v. Georgia* (1985), Reschly, Kicklighter, and McKee (1988) wrote ". . .assessment procedures focusing on correlated traits like general intellectual functioning are not as clearly related to interventions and are therefore more difficult to justify, particularly if used as the sole or the primary basis for significant classification/placement decisions" (p. 9).

An alternative, the problem-solving approach, is a systematic process emphasizing (a) problem identification, clarification and analysis; (b) intervention design and implementation; and (c) ongoing monitoring and evaluation of intervention effects. The process is databased, includes specific decision-making points, and emphasizes the use of functional and multidimensional assessment procedures. Functional assessment procedures are used that provide data specific to the identified areas of concern and to the assessment questions generated through the problem-solving process. Assessment procedures are selected so that information and data about environmental, curricular, and instructional variables are collected as well as student variables, since all of these factors affect student performance.

On November 8, 1993, the Minnesota State Board of Education voted unanimously to approve the use of the Problem-Solving Model in MPS. Over the past three years, MPS special education staff have implemented a Problem-Solving Model utilizing these three components at 31 elementary sites. The decision-making flow utilizing problem identification, implementation of interventions, and systematic progress monitoring across three stages of implementation is illustrated in Figure 3.

At Stage 1, the general education classroom teacher is trained to systematically identify the problem, deliver modified instruction, and evaluate the impact of instruction. If these interventions do not work within the classroom a building intervention assistance team addresses the needs of this student at Stage 2. This team, which may or may not include building special education staff, opens up access to more resources in developing interventions, which may include remediation from building specialists or educational assistants, Title I support, and/or help from limited English



proficiency staff. If interventions are not effective at Stage 2, the student moves to Stage 3 where the Student Support Team, which includes special education staff and building psychologist, and begins due process and more intensive interventions are attempted. At each stage in the Problem-Solving Model school staff repeat the 3-step process of identifying the problem, developing an appropriate instructional strategy, and then systematically evaluating the effectiveness of that intervention. If a student does not respond to interventions tried at Stage 3, he or she is declared eligible for special education service, is referred to as a "Student Needing Alternative Programming," and an IEP is written.

Two important points about the process are to be made. First, the student is not declared eligible for special education because of performance on an IQ and achievement test, but because their academic performance did not improve as the result of trying a continuum of progressively more intensive regular education interventions. Placement of the student, therefore, is not test-based, but is intervention-based. Second, students are not served as "learning disabled" or "mild mentally impaired." It is anticipated that eliminating these categories decreases the stigmatization associated with the labeling of students.

Preliminary Results

After three years of implementing the Problem-Solving Model as an alternative eligibility system, at approximately half of our elementary sites, informal feedback from staff indicates the results are mixed. On the positive side staff at some sites have noted the Problem-Solving Model has led to better communication among regular and special education teachers, improved teaming, and better prereferral interventions for students needing further assistance. With regard to disproportionate numbers of minority students in special education, preliminary data from Year 2 indicated the probability of an African American student being identified as needing special education was 46% at a "Problem-Solving Model" school versus 59% at a "Traditional Eligibility Model" school. In addition, some parents noted they were happy with the elimination of the "mild mental impairment" and "learning disabled" labels.

Despite these positive developments, there were many barriers and criticisms. Some regular education teachers concluded the Problem-Solving Model was an attempt by special education to keep students out of service and place more work on them. On the other hand, at some sites special education staff noted without the "criteria of tests" it was difficult to determine empirically when students had responded to regular education interventions and they had to accept more students than before into special education. Further, at some sites general education teachers concluded they did not have time to explore more alternative interventions and "systematically evaluate the effectiveness" of these classroom interventions.

Florida

In Florida, Knoff and Batsche (1997) have implemented Project ACHIEVE, an innovative education reform that focuses on students who are low-achievers and socially at-risk. Targeting school psychologists, guidance counselors, social workers and elementary-level instructional consultants, the model seeks to train school staff (in a "training of trainers" format) to improve the academic and social behaviors of students. Training and implementation includes seven essential components: strategic planning and organizational analysis and development; referral question consultation process (RQC), effective classroom teaching/staff development; instructional consultation and curriculum-based assessment; behavioral consultation and behavioral interventions; parent training and support; and research and accountability. By establishing these seven components within the school, Project ACHIEVE hopes to

> "...enhance the problem-solving skills of teachers. . .improve the building and classroom management skills of school personnel. . .improve the school's compre-

hensive services to students with below-average academic performance. . .increase the social and academic progress of students through enhanced involvement of parents and the community in the education of their children. . .create a school climate in which each teacher, staff member, and parent believes that everyone is responsible for every student in that building and community" (p. 2).

Implementation of the project components, according to Knoff and Batsche (1997) will result in a reformulation of the child study and special education referral process that is aligned with problem-solving, is intervention-focused, and utilizes available resources efficiently. Two key findings are a 75 percent decline in referral to special education and a 67 percent drop in special education placements.

Iowa

Iowa has adopted a statewide reform effort to change traditional service delivery for special education, the Renewed Service Delivery System (RSDS). According to Reschly and Tilly (1993), reform in Iowa was related to three factors: the movement toward outcomes criterion to evaluate what we do, the delineation of serious problems in the current system, service delivery to students at-risk, and improvements in assessment and intervention techniques that lead to effective programs for students with learning and behavioral needs. Undoubtedly, the serious problems in service delivery noted by these authors played a critical role in creating a context for change. Three of the problems contributing to reform were: the use of nonfunctional and stigmatizing labels; the special problem of learning disabilities identification; and the treatment validity of assessment procedures. Further, as Reschly and Tilly (1993) point out, improvements in assessment and intervention provided solutions to many of these problems. The idea of using a Problem-Solving Model to precisely define problems, directly measure behavior, design interventions, and frequently monitor student progress as a function of these interventions played an integral role in RSDS in Iowa.

Tilly, Grimes, and Reschly (1993) make the point that in a traditional assessment for a student referred for reading difficulties the assessment would focus on student characteristics. This evaluation would probably include the following: an IQ test, an achievement test, an anecdotal observation, an educational and a health history, a motor assessment, a social/emotional assessment, and a teacher interview. However, in the problem-solving approach the assessment centers on both the student's characteristics and environment. In this approach the assessment of that same child would include:

1. "A problem-centered evaluation and a general education intervention prior to special education referral.
2. A review of prereferral intervention data documenting classroom-based attempts to remediate the problem.
3. A screening CBM Reading Assessment (examining grade-level reading performance compared to typical peers).
4. A survey-level CBM Reading Assessment (examining student skills in multiple levels of the reading curriculum).
5. A specific-level CBA reading assessment (examining reading subskills and enabling skills to determine potential targets for intervention).
6. An observation/examination of the student's current reading instructional program (to determine potential contributions to student performance problems).
7. One or more systematic observation(s) of student performance in the instructional setting during reading instruction.
8. Parent, teacher, and student interviews as necessary.
9. A review of student's health, vision, hearing and educational history.
10. Participation in the design, monitoring, and evaluation of an intervention" (Tilly, Grimes, and Reschly, 1993, p. 12).

What has been the impact of RSDS? Tilly, Flugum, and Reschly (in review) survey over 2100 educators, including: special and regular education teachers, administrators, and support staff. These staff were asked to rate the extent of their agreement with the statement, "When fully implemented, the RSDS will produce better outcomes for students in comparison with the 'Old System.'" The results indicated overwhelming agreement with that RSDS has had a very positive impact.

Illinois

In Illinois, there exists a movement toward developing Flexible Service Delivery approaches in special education. This concept generally refers to the use of all existing compensatory service in a cross-disciplinary model that provides intervention resources for students who are at risk of academic failure related to learning or behavioral difficulties. "The primary purpose of the flexible service delivery system is to increase the capacity of local school districts to meet the needs of a diverse student population within

the regular education environment. By pooling resources already available within a district, local district personnel can provide intervention services designed to improve learning for students who may not be eligible for services provided through special education, Title I and other such programs. Though FSD, parents and school personnel work closely together to communicate information about student progress, identify the resources needed to meet the educational needs of children, design and provide appropriate intervention strategies, and regularly evaluate the effectiveness of such strategies" (Illinois State Board of Education, 1997, p. 2).

Several school districts, including Northern Suburban Special Education District (NSSED), Northwest Suburban Special Education Organization, Chicago Public Schools - District 299, Knox-Warren Special Education District, Livingston County Special Service Unit, and LaGrange Area Department of Special Education have developed proposed models for flexible delivery. The Illinois State Board of Education (ISBE) has ***worked closely with these states to provide*** guidelines for implementation, ensure compliance with the law, and to identify barriers and create positive solutions.

Kansas

Kansas is participating in the federal Ed-Flex waiver authority, which gives their state education agency the ability to waive some federal requirements for LEAs that wish to pursue improvement plans under Goals 2000. In addition, they have developed a waiver process under which LEAs can propose innovative, flexible service delivery models (Kansas State Education Agency, 1997). In the High Plains Education Cooperative, for example, this LEA has devised alternative assessments related to instructional decision-making and measuring student growth, reduced categorical labeling of students for services, and promoted special education staff assistance during prereferral interventions.

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Reform Trends and System Design Alternatives

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Chapter 2

INTRODUCTION

The fundamental premise in every chapter in this volume is the need for significant changes in the philosophical assumptions, design, implementation, and evaluation of services to students with disabilities. These matters are discussed by each author and applied to specific topics such as social-behavioral disorders, learning problems or disabilities with young children. In this chapter, philosophical assumptions are described along with the major flaws in the current system that necessitate consideration of broad changes in how educational services for students with disabilities are designed and delivered. Among the key themes addressed are theoretical underpinnings of the traditional and alternative systems, current practices, problems with current practices, advances in the knowledge base that provide the foundation for system reform, and principles around which a more effective system can be designed and implemented.

Paradigm Shift

In 1957 Cronbach described the two traditional disciplines in psychology, and in other social sciences such as education, as correctional and experimental. The premise of this highly influential and widely cited article was that these two fundamental approaches to promoting human welfare could be combined into a still more effective paradigm that would capitalize on and enhance the strengths of the correlational and experimental paradigms. This model, called Aptitude-by-Treatment Interaction (ATI) by Cronbach, formed the foundation for traditional special education. Unfortunately, this "new" model is unproven; indeed, it now appears unlikely that ATI will ever provide a useful model for special education, at least for many years into the future. Because of the importance of ATI to current practice, as well as the correlational and experimental approaches, these models and their underlying assumptions are discussed in some detail here.

Correlational Discipline

The correlational discipline emphasizes assessment of natural variations among people in cognitive, physical, and social-emotional domains. These variations are then related to actual performance in academic or employment settings. If there are significant relationships (correlations) between these natural variations and performance, it is assumed that increased efficiency in the use of resources and enhanced overall performance can be produced by differential selection or placement, that is, placing persons in different programs depending on their aptitudes or abilities.

The correlational discipline attempts to advance human welfare by placing students in the educational programs that are consistent with their abilities, such as special classes for persons with low ability. Cronbach suggested that the correlational tradition was more consistent with political conservatism in that the differences among people are typically seen by strong adherents to this model as relatively immutable to change and the main outcome is to fit persons to existing programs.

Experimental Discipline

In contrast, the experimental discipline was seen as more liberal politically because the fundamental aim is to create higher levels of performance through, first, discovering the best interventions and then, second, disseminating and implementing the best interventions. Different treatments or interventions are carefully contrasted so that causal statements can be made about which had the highest average effects for groups of participants or, in single subject designs, for individuals. Careful control of experimental conditions is extremely important so that valid comparisons can be made between experimental conditions (e.g., different educational methods).

Aptitude by Treatment Interactions

Use of ATI was seen by Cronbach (1957) as the means to use the strengths of each of the two disciplines to maximize human welfare. Cronbach asserted, "For any potential problem, there is some best group of treatments to use and some best allocation of persons to treatments (p. 680). The ATI approach would involve study of: a) differences among treatments; b) aptitude differences among persons;

and c) the interaction of aptitudes and treatments. Based on the interactions, individuals would be assigned to the treatments that would produce the best results. The educational application suggested by Cronbach, greater emphasis on individual prescriptions, was the basis for much of special education over the past two decades, "we should design treatments, not to fit the average person, but to fit groups of students with particular aptitude patterns. . . we should seek out the aptitudes which correspond to (interact with) modifiable aspects of the treatment." (Cronbach, 1957, p. 681).

ATI is one of the most attractive ideas in all of basic and applied psychology (Arter & Jenkins, 1977, 1979; Ysseldyke, 1973). It is an idea that "should" work in the laboratory and in practice. The idea of matching treatment to naturally occurring characteristics of the person makes inherently good sense; clearly, it is consistent with our humanistic commitments of individualizing instruction and psychological treatments in order to maximize opportunities. ATI is especially attractive in special education, where most of the work traditionally has been with individual children referred for learning and behavior problems. The implication of ATI is that we should carefully match teaching methodology to the student's learning style, cognitive strengths, or temperament. Moreover, traditional special education assumed that unique teaching methods with differential effectiveness existed for students in different disability categories, for example, specific learning disability (SLD) or Mild Mental Retardation (MMR).

ATI Failure and Short-Run Empiricism

What "should" work, what is inherently appealing, is not always a sound basis for practice. Such is the case with the efforts to use ATI as the foundation for special education. In less than two decades, Cronbach's frustration with ATI as a basis for applied work in education and psychology was abundantly apparent: "Once we attend to interactions, we enter a hall of mirrors that extends to infinity." (Cronbach, 1975, p. 119). In the ensuing years between 1957 and 1975, Cronbach and colleagues conducted many studies in which attempts were made to identify interactions of aptitudes and educational methods. Unfortunately, the hypothesized interactions often did not occur, were extremely weak when they did appear, and often were entangled in intractable and hopelessly complex higher order interactions that were virtually impossible to study in laboratory settings let alone use in practical situations. Furthermore, potent interaction effects, when they did exist, occurred for prior achievement or skill levels within the area of achievement that was the focus of remedial efforts. No interactions occurred with the variables of interest such as information processing modality, learning style, or neurological strengths. Indeed, level of prior knowledge or skills is an important variable in subsequent learning or performance; however, the effect of prior knowledge was not the kind of aptitude envisioned in Cronbach's grand design or in the special education applications of ATI.

In his 1975 article, Cronbach abandoned ATI as the basis for applied work in education and psychology. The strategy he suggested to replace ATI was remarkably similar to the outcomes criteria and problem solving strategies that will be discussed in more detail later in this chapter and in many of the chapters that follow. In place of ATI, Cronbach suggested context specific evaluation and short run empiricism, "One monitors responses to the treatment and adjusts it." (p. 126). Two realistic goals were proposed by Cronbach for applied work in education and psychology, "One reasonable aspiration is to assess local events accurately, to improve short-run control. The other reasonable aspiration is to develop explanatory concepts, concepts that will help people use their heads." (1975, p. 126). The use of short-run empiricism, what is called problem solving now, and the selection of behavior change or instructional design principles from the available literature (selecting explanatory concepts and using our heads) is the contemporary application of Cronbach's suggestions for moving beyond the rigidity and insufficiency of the two disciplines of scientific psychology.

Special Education Applications

Parallels to Cronbach's two disciplines in traditional and modern special education are easily identified. Although the experimental model was used at least occasionally throughout the history of special education, most of modern special education has focused more on the correlational and ATI bases for practice. The relatively recent and increasingly widespread use of single subject designs and behavioral interventions represents the clearest applications of the experimental discipline.

The correlational parallel occurs with traditional placement services in which referred children are assessed to determine if they meet the criteria for classification as disabled. Children with low scores on measures of current intellectual functioning and academic achievement, or with large discrepancies between their scores on intellectual and achievement measures, are often placed in different educational programs for part or all of their school day. The differential placement is seen as necessary to allow children to benefit educationally because the general education program is inappropriate to their naturally occurring aptitudes, a classic application of the correlational discipline described

in 1957 by Cronbach.

The roots of modern special education clearly rely heavily on advances in the assessment of abilities, aptitudes, and achievement that occurred early in the 20th century (Fagan, 1992) and a substantial proportion of current practice involves assessment of children's abilities, aptitudes and achievement as the basis for diagnosing disabilities and making special education placement decisions. This application of the correlational science is valid to the degree that the placements are different and beneficial for individuals, groups, or systems, an issue to which we will return in a subsequent section. The overall failure of ATI, however, has vast implications for modern special education (see subsequent section of this chapter as well as the Ysseldyke and Marston chapter in this volume).

Disability Diagnosis and Assessment Practices

The special education paradigm shift from the correlational-ATI model to an experimental-problem solving focus has vast implications for the identification and assessment of students with learning and behavior problems who may receive a disability diagnosis and placement in a special education program. The need for this shift is based on the characteristics of and problems with the current system of assessment and disability diagnosis.

Purposes of Disability Diagnosis and Assessment

Eligibility for special education services in most states is based on meeting two pronged criteria: first, the student must meet the criteria for at least one of the thirteen disabilities recognized in the federal Individuals with Disabilities Education Act (IDEA) (or the counterparts thereof in state law) (1997) and, second, special education and/or related services must be required in order for the student to receive an appropriate education. Some students are eligible for disability diagnosis, but do not need special education and/or related services, while other students need the services, but are not eligible according to the classification criteria established in federal or state legal requirements.

If the two pronged criteria are met, that is, disability diagnosis and special education need are confirmed, the student then has certain important rights to individualized programming designed to improve educational performance and expand opportunities. These rights are established through several layers of legal requirements based on federal and state statutes, federal regulations, state rules, and state and federal litigation (Reschly & Bersoff, 1998). Prominent among these are the requirements that eligible students with disabilities must receive a full and individual [illegible]iation, decision making by a team that includes the student (as appropriate), parents, and professionals, due process procedures to resolve disputes, an individualized educational program, specially designed instruction and/or the related services as needed to ensure an appropriate education, and delivery of services in the least restrictive environment.

The classification system used in special education identification also serves numerous other functions that are not discussed here (e.g., organization of research, communication among scholars, lay public, and policymakers, differential training and licensing of specialists such as special education teachers, advocacy for expanded rights and support for programs, etc.).

Current Identification And Assessment Practices

A number of comprehensive classification systems exist and influence, to varying degrees, classification in special education (American Psychiatric Association, 1994; Luckasson et al., 1992; MacMillan & Reschly, 1997; Reschly, 1992; World Health Organization, 1994) There is, however, no official special education classification system that is used uniformly across states and regions.

Federal and State Disability Categories

Thirteen disabilities are defined in the federal IDEA legislation (IDEA, 1997). Brief definitions are provided in the regulations for the following categories of disabilities: autism, deafblindness, deafness, hearing impairment, mental retardation, multiple disabilities, orthopedic impairment, other health impairment, serious emotional disturbance, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment. Federal classification criteria are not provided for any of these disabilities except learning disabilities.

The disability categories are based to varying degrees on eight dimensions of behavior or individual characteristics: intelligence, achievement, adaptive behavior, social behavior and emotional adjustment, communication/language, sensory status, motor skills, and health status, (Reschly, 1987). The five dimensions of intelligence, achievement, adaptive behavior, social behavior or emotional adjustment, and communication/language account for about 90% of the students who are diagnosed as disabled and placed in special education.

There are significant differences across the states in the categorical designations, conceptual definitions, and classification criteria (Mercer, King-Sears, & Mercer, 1990; Patrick & Reschly, 1982; Smith, Wood, & Grimes, 1988). These differences have the greatest impact on the students who will be described later as mildly disabled. For now it

is sufficient to note that it is entirely possible for students with identical characteristics to be diagnosed as disabled in one district or state, but not in another, or to have the categorical designation change with a move across district or state lines (Fruchter, N., Berne, R., Marcus, A., Alter, M., & Gottlieb, J., 1995).

Medical and Social System Models

Models of disabilities have implications for understanding the traditional and alternative special education systems. The traditional special education classification system involves a mixture of medical and social system models of deviance (Mercer, 1979; Reschly, 1987), a problem recognized for at least two decades (Hobbs, 1975a, 1975b). The medical and social system models, as different ways of thinking about the nature of disabilities, have significant implications for identification, assessment, and treatment (see Table 1). The fundamental difference in the models has to do with the relative importance of etiology or causation to diagnosis and treatment.

There are two related meanings of medical model in current special education practices. The first meaning is that underlying causes are seen as crucial to accurate identification and effective treatment. The underlying causes in the context of child disabilities can be biological, cognitive, or psychological. An example of a cognitive cause is the assertion that a child will not learn to read efficiently until a cognitive process called planning is mastered and applied appropriately in reading (Naglieri, Das, & Jarmon, 1990). The traditional approach of attempting to identify and then remediate the underlying "causes" of SLD leads to the use of a variety of assessment procedures and inferences about hypothetical states of the student that are not closely related to treatment. The associated assessment procedures are expensive and often inadequate according to technical criteria. Moreover, and most importantly, focusing on these underlying causes is not supported by research on the outcomes of psychological and educational interventions; instead, treating symptoms is more effective (Bandura, 1986; Weisz, Weiss, Han, Granger, & Morton, 1995).

A second use of the medical model in special education and related areas is to denote disabilities with a known or strongly suspected biological basis (Mercer, 1979; Reschly, 1996). Medical model disabilities involve biological anomalies that can be said to cause the disorder (e. g., retinopathy of prematurity as a cause of blindness). Medical model disabilities are generally life-long, relevant to most if not all social roles and social settings, and likely to be identified regardless of cultural context. Medical model disabilities typically are identified by medical personnel during the preschool years, often in the first year of life. Relatively few of the biologically based disabilities are initially diagnosed in school settings or by educational pro-

Table 1. Comparison of Medical and Social System Models of Disabilities

Characteristic	Medical Model	Social System Model
Definition of Problem	Biological Anomaly or Under-Process Deficit	Discrepancies Between Expected and Observed Behavior in a Specific Context
Focus of Intervention	Focus On Cause with Purpose of Eliminating the Cause or Compensating for the Underlying Condition	Eliminate Symptoms Through Direct Educational Interventions
Initial Diagnosis	Pre-school years by Medical Professionals	During School-Age Years by Educational Professionals
Incidence	Low (About 1% of School-Age Population)	High (About 9%-12% of School-Age Population)
Prognosis	Life-long Disabilities	Disabilities Recognized Officially During School-Age Years
Cultural	Cross-Cultural	Culturally Specific Context
Comprehen-hensiveness	Usually Affects Performance in Most Social Roles in Most Contexts	Usually Affects One or a Few Roles in a Specific Context

fessionals. Treatment focuses on eliminating the underlying cause if possible, or compensating for its effects to the degree possible.

In contrast, the social system model places little emphasis on underlying causes of learning or behavior problems, focusing instead on direct assessment and treatment of the symptoms of the disorder or disability. In the social system model disorders are defined as discrepancies from expected patterns or levels of behavior on important dimensions of behavior in a specific context or social role. Normative standards based on the average levels of performance for persons of a specific age typically are used to define expectations. Statistical indices such as percentile ranks and discrepancies expressed in standard scores such as IQs are used to quantify the amount of difference from age or grade level averages. State special education rules usually establish specific criteria to determine how large the discrepancies must be in order for the child to qualify for a disability classification and thereby gain entitlement to special education services. Often a point or two in these discrepancy scores can determine whether or not a student is eligible for special education and whether or not several additional thousands of dollars are spent on the child's education.

The 13 disabilities now recognized in the IDEA (1997) reflect, to varying degrees, the medical and social system models of deviance. The medical model is most useful for understanding categories such as autism, deaf, deafblind, hard of hearing, multiple handicapped, other health impaired, traumatic brain injury, visually handicapped, and the moderate or severe levels of MR. In these categories there typically is strong evidence of underlying biological anomalies and identifiable physiological differences that usually can be linked to observed deficits in behavior.

The mixture of the medical and social system models has the most serious consequences in the area of SLD where there often is confusion over the relative importance of underlying causes and symptoms in assessment, identification, and treatment. According to Mercer et al. (1990) the most widely used definition of SLD states that it is "a disorder in one or more of the basic psychological processes involved in understanding or using language .." (IDEA, 34 C.F.R. 300.7(a)(10)). The definition goes on to say that, "The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia." In the 1980s revised SLD definitions were formulated by professional associations (Hammill, 1990) that included the presumption that SLD was caused by neurological impairment even though no hard signs of neurological deficits can be identified in the overwhelming majority of students with SLD.

The major problem with applying a medical model perspective to SLD and other mild disabilities is that it leads to focusing on presumed underlying factors and characteristics that to date have been largely irrelevant to treatment. Indeed, efforts to assess and treat the underlying "psychological processes" or to choose treatment approach or depending on neuropsychological characteristics have been largely unsuccessful (Kavale, 1998). Focusing on those aspects directs attention to factors that have little of no payoff in treatment and, inevitably, detracts from focusing directly on treating the symptoms of SLD such as poor reading skills (see later discussion).

The social system and medical models are important because they affect assumptions about conception, diagnosis, and treatment of disabilities. The emphasis in this volume is on understanding most special education disabilities from a social system model and on the direct treatment of symptoms rather than underlying processes. Conceptualizing most disabilities as mild and viewing them as manifestations of a social system model does not mean that students with mild disabilities are experiencing trivial problems in development. For example, problems with attaining literacy skills as reflected in very low reading achievement or poor behavioral competencies as reflected in aggressive behaviors often interfere significantly with normal development and seriously impair the individual's opportunities to become a competent, self-supporting citizen. Referring to these problems as social system disorders does not mean that they are only modest challenges, but the social system perspective assists in avoiding futile searches for underlying causes that are expensive, time consuming, and unrelated to effective treatment while, at the same time, placing more emphasis on changes that can be made in the student's competencies through systematic instructional and behavioral interventions.

Distribution and Severity of Special Education Disabilities

The system reform efforts involving the noncategorical classification of students with disabilities discussed in several chapters in this volume applies primarily to students with social system model disabilities that are mild to moderate in degree. In this section the distribution and severity of the 13 disabilities recognized in federal law are discussed.

Several important trends are apparent in the statistical data in Table 2, constructed from information in a federal government report (U. S. Department of Education, 1994). First, the prevalence of disabilities varies by age and cat-

egory. Speech Impaired (SP/I) prevalence declines substantially in the older age interval. SLD is the most frequently occurring disability at both age intervals, a trend that is particularly prominent at the 12-17 age interval. Second, although there are 13 categories, over 90% of the children classified as disabled in school settings are accounted for by the disabilities of SLD, SP/I, MR, and seriously emotionally disturbed (SED). SLD has increased by 20% since 1976 when these data were first collected, accounting now for over half of all students classified as disabled.

The severity of disabilities also varies within and between categories. The adjectives mild, moderate, and severe are used to denote the severity of disabilities. Severity is influenced by: a) the size of the deficit in behavior along key dimensions (e. g., intelligence, achievement, communication/language, motor skills, and health status); b) the number of areas in which there are deficits; and c) the amount and kind of support needed in order for the student to participate in daily activities such as learning, work, leisure, self-care and mobility in the community. Persons with disabilities at the mild level typically have smaller deficits on the key dimensions, deficits in fewer areas, and can function without assistance in most of the normal daily activities. Persons with disabilities at a severe level typically have large deficits, often in two or more areas that require lifelong, extensive and consistent support.

Most persons with disabilities at the mild level typically have a normal appearance and no evidence of physical or health anomalies that cause the deficits in behavior. Identification typically occurs after school entrance through a preplacement evaluation by a multidisciplinary team composed of specialists in general education, special education, and school psychology. The preplacement evaluation usually occurs because of a teacher-initiated referral of the child due to severe and chronic achievement problems (Reschly, 1996). As adults students with mild disabilities typically are not classified officially as disabled and usually do not receive any services or benefits related to being disabled. However, most experience continuing problems with coping with some everyday demands and most are in lower career or occupational statuses than their nondisabled peers.

Although there are wide variations among the persons within each of the 13 categories of disabilities, some general trends are identifiable. First, the high incidence disabilities such as SLD and SP/I nearly always occur at the mild level, that is, there is no identifiable biological anomaly that is responsible for the disability, the disability affects behavior only in certain social roles or settings, and most not identified as disabled as adults. The level of disabilities in MR and SED can vary from mild to severe; however at least half of both categories are at the mild level (Grosenick, George, & George, 1987; Kauffman, Cullinan, & Epstein, 1987; MacMillan, 1988). Disabilities at the mild level in the categories of SLD, SP/I, SED, and MR are understood best from the social system model of deviance because there is not an identifiable biological basis for the disability; the impairments in behavior are restricted to particular roles in specific contexts, and effective treatment focuses on symptoms rather than underlying causes.

In contrast, the disabilities in the category of "other" in Table 2, accounting for about six to seven per cent of the school-age population with disabilities and about one percent of the overall population, are much more likely to cause moderate or severe levels of impairment. Moreover, a medical model perspective is appropriate because nearly all of the children and youth with sensory impairments such as deafblindness, deafness, hearing impairment, and visual impairment have identifiable biological anomalies that are permanent and that have a direct relationship to impairments in behavior. Similarly, children with autism, multiple disabilities, orthopedic impairment, other health impairment, and traumatic brain injury also have disorders that are of constitutional origin or that occur through illness, accident, or injury, nearly always accompanied by evidence of physiological anomalies.

The distinctions developed here regarding severity of disabilities and underlying model of deviance are applicable to the vast majority of persons with disabilities. There are exceptions in individual cases that do not fit either model very well or cases of persons with severe impairments in daily life activities and completely normal biological composition. Moreover, there is research linking biological factors to mild disabilities such as SLD, particularly reading disabilities (Lyon, 1996). These links involve possible differences in brain functioning among readers with and without disabilities as well as a possible genetic link to severe reading disabilities. These differences are, however, correlational as noted by a writer in a recent Science News and Comment (Roush, 1995). Further research is needed to determine if these biological correlates are replicated with new samples of students with SLD, and whether the presence or absence of the correlates reliably distinguishes between those with and without SLD.

A final feature of the different types of disabilities is large variance across states in the prevalence of mild disabilities, but negligible prevalence differences for the more severe disabilities. Consider these prevalence figures: SLD varies from 2.73% in Georgia to 9.43% in Massachusetts; MR varies from 0.33% in New Jersey to 3.06% in Ala-

Table 2[1]. School Age Population (6-17) Diagnosed as Disabled

Category[2]	6-11	12-17	Total	Per Cent of Overall Population
SLD	997,247 (41.55%)	1,249,940 (62.90%)	2,247,187 (51.22%)	5.25%
SP/I	889,257 (37.05%)	104,556 (5.26%)	993,813 (22.65%)	2.32%
MR	209,475 (8.73%)	258,406 (13.00%)	467,881 (10.66%)	1.09%
SED	137,423 (5.73%)	242,387 (12.20%)	379,810 (8.66%)	0.89%
Other[3]	166,724 (6.95%)	131,952 (6.64%)	298,676 (6.81%)	0.70%
Total	**2,400,126**	**1,987,241**	**4,387,367 (100%)**	**10.25% (100%)**

1. The data in this table are taken from the *Sixteenth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act*, Tables AA6, AA7, AA13, AA14 and AA27, United States Department of Education, 1994. Total estimated enrollment of children age 6-17 = 42,845,380.

2. SLD = Specific Learning Disability; SP/I = Speech Language Impairment; MR = Mental Retardation; and SED = Seriously Emotionally Disturbed.

3 "Other" is the prevalence of autism, deaf-blindness, deafness, hearing impairment, multiple disabilities, orthopedic impairment, other health impairment, traumatic brain injury and visual impairment.

bama; SP/I varies from 1.16% in Hawaii to 4.23% in New Jersey; and SED varies from 0.04% in Mississippi to 2.08% in Connecticut. Many other discontinuities are apparent in these data. For example, the SP/I prevalence in New York, a state adjacent to New Jersey where SP/L prevalence is over four percent, is only 1.17% (U. S. Department of Education, 1994).

The idea that such variations could be genuine differences in student populations stretches the imagination. It is highly unlikely that there are over nine times as many students with MR in Alabama as New Jersey; that there are over three times as many students with SLD in Massachusetts as in Georgia; or that there are 52 times as many students with SED in Connecticut as in Mississippi. The national prevalence for children and youth, ages 6-17, is 10.24%; however, the states vary from a low of 7.09% in Hawaii to 15.21% in Massachusetts (U. S. Department of Education, 1994). These variations in prevalence are more likely to be related to unique state-by-state practices regarding how children and youth with mild disabilities are identified as disabled than to real differences in student populations.

Diagnosis and Assessment Practices

Elaborate legal requirements govern the procedures whereby a student is diagnosed as disabled and placed in special education. The process can be divided into several stages, each reflecting extensive safeguards that are designed to: (a) ensure that students with disabilities are identified and provided special education and, at the same time, (b) protect non-disabled students from inappropriate diagnosis and special education placement.

The federal legal protections associated with the pre-placement evaluation and the reevaluation appear in the Protection in Evaluation Procedures (PEP) section of federal law (IDEA, 1997, 34 C.F.R. 300.530). According to these regulations, each child referred due to a suspected disability is entitled to a full and individual evaluation. Testing and evaluation materials and procedures must not be racially or culturally discriminatory; must be provided and administered in the child's native language; have been validated for the specific purpose for which they are used; are administered by trained personnel; and assess specific areas of educational need and not just a single general intelligence quotient. In addition, no single procedure can be used as the sole criterion for determining an educational program and the evaluation must be conducted by a multidisciplinary team. The child must be assessed in all areas related to the suspected disability, "including, if appropriate, health, vision, hearing, social and emotional status, general intelligence, academic performance, communicative status, and motor abilities." (IDEA, 1997).

The administration of a comprehensive, individually administered IQ test and one or more standardized, individually administered achievement tests nearly always

dominates the SLD eligibility determination process. Such testing is virtually mandated if the federal guidelines are followed in SLD and MR which require, in part, a severe discrepancy between achievement and intellectual ability and significantly subaverage general intellectual functioning, respectively. Operationalizing the traditional categories through IQ testing and other standardized assessment is enormously expensive and has little relation to designing, implementing, and evaluating educational interventions for students with mild disabilities (Fruchter et al., 1995; Moore, Strang, Schwartz, & Braddock, 1988; Reschly, 1996; Reschly & Ysseldyke, 1995). Changes in the categorical designations of students with disabilities, dropping the old categories and using a noncategorical system with functional operational criteria, are prominent system reform themes in this chapter and volume.

Problems in the Current System

Problems with the current classification system were recognized at least 20 years ago in the large federally funded exceptional child classification project (Hobbs, 1975b). In addition to the classification or labeling concerns addressed by Hobbs and his colleagues, significant additional concerns have emerged with renewed or new emphasis over the last 25 years. Chief among these problems are dubious evidence on the effectiveness of special education programs for students with mild disabilities, the excessive use of nonfunctional and stigmatizing labels, the failure of traditional special education approaches to assessment and intervention, and continued disproportionate representation of minority students in special education programs. These problems are discussed in this section with consideration of reform alternatives in subsequent sections.

Effectiveness of Special Education

Foremost among current problems with the delivery system is the uncertain benefits of special education programs, especially for students with mild disabilities. In fact, there is very little evidence about whether special education programs confer benefits despite the legal requirement that IEPs be reviewed annually and the emphasis in the federal law on ensuring benefits to individual children. The most recent revision of federal law places much greater emphasis on the issue of benefits and the rights of students with disabilities to participate in the usual district-wide or state mandated assessment programs, or in an alternative assessment program that reflects growth or benefit information (IDEA, 1997). Uncertain benefits are closely related to four additional issues: (a) the failure of ATI-based interventions, (b) the validity of traditional categories, (c) the usefulness of traditional assessment, and (d) the quality of special education programs and interventions.

Failure of ATI-based Interventions. The original ATI applications to special education involved identifying weaknesses in the basic processes that were presumed to underlie academic achievement, training or remediating those weaknesses as a means to overcome barriers to normal academic achievement, followed by teaching relevant academic skills such as reading after these barriers have been removed. By the early 1980s the evidence was clear that programs for students with mild disabilities focusing on the remediation of weaknesses in the processes presumed to underlie normal achievement had dubious benefits in remediating the processing weakness and no documentable benefits in improving academic achievement (Arter & Jenkins, 1977, 1979; Hammill & Larsen, 1974, 1978; Kavale, 1981; Kavale & Forness, 1987, 1990; Kavale & Mattson, 1983; Ysseldyke, 1973; Ysseldyke & Mirken, 1982). These findings continue to the present (Kavale, in press).

A second type of ATI application continues to be prominent in special education, that of matching teaching methodology to information processing strengths. Recent aptitude constructs used in the matching of process and methods involve assertions about learning styles or cognitive processing strengths such as successive or simultaneous processing or neuropsychologically intact areas (Hartlage & Reynolds, 1981; Hartlage & Telzrow, 1986; Kaufman, Goldsmith, & Kaufman, 1984; Kaufman & Kaufman, 1983; Reynolds, 1981, 1986, 1992). These more recent ATI constructs have been no more successful than their information processing modality predecessors (Ayers & Cooley, 1986; Ayers, Cooley, & Severson, 1988; Good, Vollmer, Creek, Katz, & Chowdhri, 1993). Whether aptitude is conceptualized as cognitive processes, information processing modalities, learning style or intact neurological areas, Cronbach's (1975) characterization of ATI is still accurate, "Once we attend to interactions, we enter a hall of mirrors that extends to infinity." (p. 119).

If ATI in special education does not work, then what is the value of assessing underlying cognitive processes or, as stated in the federal definition of learning disabilities, "basic psychological processes related to learning?" Indeed such assessment is expensive and, more insidiously, deflects attention from direct assessment and remediation of important achievement problems such as reading and mathematical reasoning. Yet, the current system and traditional classification practices are predicated on assessment of underlying aptitudes and on the use of this information to design educational interventions. Evidence on effectiveness

leads these authors and the other authors in this volume to advocacy for a redesigned system.

Treatment Validity of Traditional Disability Categories

Traditional special education is predicated on the assumption that differentially effective teaching methodologies exist for different categories of students with disabilities, that is, unique and effective teaching methodologies are associated with different disabilities such as MR and SLD. Contrary to this fundamental assumption, however, is the evidence that the information needed to determine whether or not a student is eligible to be classified as SLD, mild MR, or SED typically does not relate closely to treatment decisions regarding general goals, specific objectives, monitoring of interventions, or evaluating outcomes. Furthermore, considerable evidence now exists suggesting that the educational interventions provided to students in the different disability categories are far more alike than different (Algozzine, Morsink & Algozzine, 1988; Boucher & Deno, 1979; Epps & Tindal, 1987; Haynes & Jenkins, 1986; Jenkins & Heinen, 1989; Jenkins, Pious & Peterson, 1988). Effective instructional programming or psychological treatment utilizes the same principles and often the same materials and procedures regardless of whether the student is classified SLD, mild MR, SED, slow learner, or educationally disadvantaged (Carter, 1984; Epps & Tindal, 1987). In short, the disability category seems to make little difference in choice of teaching methodology.

Another criterion for treatment validity, relationship to prognosis or outcomes, is critical to whether or not the information used to classify the student is useful to the individual. The research cited in the prior paragraph as well as other reviews have indicated that traditional categories do not have a demonstrable relationship to specific outcomes or to specific prognoses (Epps & Tindal, 1987; Kavale, in press; Kavale & Glass, 1982) beyond that which would be known from their educational skill deficits. Generally, students with poor achievement have diminished adult outcomes and level of adult outcome is related to level of and comprehensiveness of achievement deficits. The category per se adds little to the prediction of outcomes beyond that known from achievement.

Usefulness of Traditional Assessment. Much of the assessment used in the traditional special education system is made necessary by the use of a categorical classification system that uses diagnoses such as SLD and MR. As noted previously, the diagnostic criteria for these categories practically necessitate administration of norm-referenced, standardized tests of achievement and ability. Unfortunately, the emphasis on norm-referenced, standardized tests in determining eligibility typically is continued throughout special education intervention design, implementation, and evaluation. The information from these tests, however, has little relationship to specific interventions and is even less useful in assessing the effectiveness of programs.

Norm-referenced standardized tests typically sample behaviors across broad domains such as reading or mathematics. The sample of items usually is sufficient to determine the student's relative standing compared to others with similar age or grade level characteristics. This relative standing typically is represented by scores such as percentile ranks, grade scores, or standard scores. None of these scores has a direct relationship to specific skills that have been learned or those that have not. Since the items represent a sample of skills in a domain, not all of the skills, or even all of the essential skills, are included on the typical norm referenced, standardized test. Since skills are sampled rather than covered thoroughly on norm-referenced achievement tests, it is difficult to translate the results directly in decisions about specific instructional objectives or to monitor progress.

The scores on norm-referenced, standardized tests typically are not very useful in assessing the benefits of special education programs. These scores indicate relative standing. Thus, a constant percentile rank score from year to year, for example, 10th percentile in 1998 and 10th percentile in 1999, depending on the scaling properties of the score scale, may indicate that the student was achieving one year of achievement growth for each year of special education instruction. That result might be rather good in view of the typical pre-special education history of most students with disabilities; however, a constant, low score will never provide very impressive evidence of special education effectiveness for most observers or political leaders. In addition, that constant norm-referenced score may not reflect growth at all; rather, it may reflect floor effects, score scaling problems, or differences in the norms from level to level of the test. In short, typical norm-referenced, standardized tests are simply not designed to assess individual patterns of growth. Although these tests do indicate the student's relative standing and the degree to which achievement is below age or grade averages, they provide little information about specific intervention needs or the growth in skills from year to year. Alternatives to norm referenced standardized tests have great promise for overcoming these problems.

A further concern about the common measures used in special education assessment is mediocre to poor technical characteristics (Christenson & Ysseldyke, 1989; Reschly, 1980; Salvia & Ysseldyke, 1995; Wilson & Reschly, 1996; Witt, 1986). Many decisions are made about students with disabilities using instruments that do not have adequate technical characteristics for significant decisions. Second, the instruments with strong technical characteristics (e.g., Wechsler Scales and Woodcock-Johnson Achievement Battery) have relatively little application to the determination of specific treatment needs or to monitoring and evaluating the effects of treatments. As noted in a Buros Mental Measurements Yearbook review of one of the most venerable and widely used instruments, the Wechsler Scales have excellent technical characteristics related to determining relative standing in a normative group, information that is useful for classification, but largely irrelevant to treatment, "In short, the WISC-R lacks treatment validity in that its use does not enhance remedial interventions for children who show specific academic skill deficiencies." (Witt & Gresham, 1985, p. 1717). The authors in this volume are convinced that alternative assessment procedures can overcome many of the inadequacies of traditional assessment instruments and practices in special education.

Quality of Interventions. One of our greatest concerns is the quality of current interventions (Flugum & Reschly, 1994; Gresham, 1989; Gresham, Gansle, Noell, Cohen, & Rosenblum, 1993; Tilly & Flugum, 1995). Basic intervention principles often are not implemented in IEPs, special education programs, and prereferral interventions, and these interventions typically are not evaluated using individualized, treatment sensitive measures. Guidelines and criteria do exist to assist in the design of high quality interventions, the monitoring of progress, revisions to improve results, and assessing outcomes. Absence of high quality interventions coupled with poor evaluation of individual progress may alone account for the undocumented benefits of special education. Further discussion of intervention quality occurs in several chapters in this volume and will, therefore, not be discussed further in this chapter.

Improved outcomes for students with disabilities are the major rationale for system reform. Special education effectiveness can be significantly enhanced with a change in conception of disabilities moving away from the ATI-based focus on underlying processes and to an emphasis on direct instruction/intervention in relevant domains of behavior. This change in conception must be accompanied by improved instruction/interventions, valid and functionally l assessment and classification. These advances hold great promise for improving the outcomes of special education programs.

Stigmatizing, Nonfunctional and Unreliable Diagnoses

Hobbs (1975a) characterized the traditional special education diagnoses and the procedures for arriving at them as,

> "They are imprecise: They say too little, and they say too much. They suggest only vaguely the kind of help a child may need, and they tend to describe conditions in negative terms. Generally, negative labels affect the child's self-concept in a negative way, and probably do more harm than good" (p. 102).

Stigma. The degree to which lifelong, permanent negative effects of classification (labeling) occur is disputed. Certainly, the more extreme claims made by critics of classification procedures in the late 1960s and early 1970s such as labels create deviant behavior rather than vice-versa, or labels are created by self-fulfilling prophecy mechanisms (Mercer, 1973) were not supported by evidence and are heard less often now. Nevertheless, the common names, SLD, mild MR, and SED, used with students with mild disabilities have negative connotations. An earlier, now classic, review (MacMillan, Jones & Aloia, 1974), reported two well established facts concerning the effects of traditional special education diagnoses: There is widespread misunderstanding of their meanings by professionals and the lay public (Goodman, 1989); and the bearers of labels, for example, persons classified as SLD, find the classification uncomfortable and, very often, objectionable (Jenkins and Heinen, 1989). Concerns about the effects of classification on individuals have led to calls for the elimination of the common special education diagnoses (Rights Without Labels, 1986).

Although this literature is complex, and no one ever should be so naïve to believe that simply avoiding any formal labels will solve the problem of labeling, one conservative conclusion is that categorical classification should be used as sparingly as possible and, when used, should utilize terms with as few negative connotations as possible, and focus on skills rather than presumed internal "inherent attribute" characteristics of the individual. The noncategorical approaches discussed in this volume still recognize the necessity of, as well as the legal rights to, a diagnosis as disabled within the context of IDEA (1997), accompanied by, in most instances, the right to special education and related services. Noncategorical does not mean elimination of eligibility for special education and as long as some students are eligible for special services due to learning or

achievement problems, there will be some negative connotation associated with that different status.

Our noncategorical approaches do, however, stress classification based on the specific skill deficits (e. g., low reading decoding skills) and the services needed (e. g., tutoring in phonological awareness) rather than presumed internal attributes that are often misunderstood to characterize the whole person. We believe that the noncategorical designation focusing on skill deficits and services needed will be more acceptable and less stigmatizing than traditional "whole person" characterizations such as learning disabled, mentally retarded, or seriously emotionally disturbed.

Reliability. Current diagnoses using traditional categories are frequently unreliable. Although it is virtually impossible for a student performing at the average level or above to be classified as SLD or MMR, accurate differential diagnoses often are difficult between these categories or between these categories and other classifications such as slow learner, economically disadvantaged, and at risk for poor educational outcomes. Reasons for this unreliability include: a) the overlapping characteristics among students in these categories (Epps, Ysseldyke & McGue, 1984; Gajar, 1979; Kavale, 1980; Neisworth & Greer, 1975; Shinn, Ysseldyke, Deno & Tindal, 1986; Ysseldyke, Algozzine, Shinn & McGue, 1982); b) classification criteria variations between and within states (Mercer, et al., 1990; Patrick & Reschly, 1982) c) variations in teacher tolerance for student differences and different screening and placement practices within and between districts (Hersh & Walker, 1983; MacMillan, Meyers, & Morrison, 1980); and d) variations in the quality of assessment measures used by professionals (Coles, 1978; Shepard, 1983; Wilson & Reschly, 1996; Ysseldyke, Thurlow, Graden, Wesson, Algozzine & Deno, 1983).

Considerable evidence also indicates that children with different characteristics are diagnosed as disabled depending on the state, school district within a state, and, in some instances, school attendance center within a district even though common disability constructs and similar if not identical classification criteria are used. In fact, disability diagnoses depend very much on referral practices, existence or absence of alternative programs in general education for students with learning and behavior problems, and the level of performance of peers. In a high achieving district, for example, a student who is slightly below average for all children in a state, may be referred, diagnosed as having a significant discrepancy between ability and achievement, and placed in special education with a diagnosis of SLD. Another student with identical achievement patterns located low achieving district may be achieving at the average level for his classroom or district. Such students are highly unlikely to be referred. It is important to note that mild disabilities, especially the most frequently occurring disability, SLD, is very much a relative phenomenon that is influenced markedly by the level of performance of peers in a specific classroom within a specific district, a clear example of the social system model.

A further reason for the unreliability is that the mild disabilities exist on broad continua in which there are no clear demarcations between those who have and those who do not have the disability. Although most states adopt ability-achievement discrepancy criteria for diagnosing SLD, there is no universal agreement on the size of the discrepancy required to produce a "significant discrepancy." Most children who are referred and assessed for possible SLD obtain discrepancies that are very close to the criterion. If a child barely misses the necessary discrepancy, the persons doing the assessment may apply additional tests and, in some instances, continue testing with different instruments until the necessary discrepancy is achieved. Then the results of the tests with nondiscrepant scores are ignored and the one test that yielded the significant discrepancy is reported in the official records supporting the SLD diagnosis and the special education placement. Although this practice may seem inappropriate, it typically is motivated altruistically as a means to obtain help for a student who is experiencing achievement difficulties in general education.

The problem is that the current special education eligibility scheme imposes a dichotomous decision, the student either is or is not eligible, onto behaviors that exist on broad continua that have fine gradations of performance from slightly to markedly below average. There are no "natural" points on these continua that clearly mark "disability" from "nondisabled," or a significant discrepancy from a nonsignificant discrepancy. A further illustration of this phenomenon comes in the form of one of the key findings in the National Institute of Child Health and Human Development (NICHD) funded studies on learning disabilities (Lyon, 1996) where the impossibility of clearly differentiating between dyslexia and low achievement in reading was described as,

> "This study allowed us to investigate the commonly held belief that dyslexia is a discrete diagnostic entity. Our data do not support this notion. Rather, they suggest that dyslexia occurs along a continuum that blends imperceptibly with normal reading ability. These results indicate that no distinct cutoff point exists to distinguish children with dyslexia clearly from children with normal reading ability; rather, the dyslexic children simply represent the lower portion of the con-

tinuum of reading capabilities." (p. 148, Shaywitz, Escobar, Shaywitz, Fletcher, & Makush, 1992)

Shaywitz, et al. (1992) also noted that the diagnosis of dyslexia was not stable for children in the elementary grade levels. The instability from year to year further aggravates the reliability of the diagnosis of dyslexia or SLD, as it is likely to be called by special educators.

The solution to these problems is avoid the use of either-or, dichotomous eligibility decisions and, instead, allocate resources in finely graded increments to match the actual nature of learning or behavior problems. Some suggestions for the design of that kind of eligibility and funding system appear in a subsequent section of this chapter.

Disproportionate Minority Representation

Disproportionate minority representation in special education, like labeling and special education effectiveness concerns, is not a new issue. Dunn (1968) called attention to overrepresentation of minorities in special education, a concern that was further addressed in extremely expensive and enormously divisive litigation throughout the U. S. in the 1970s, 1980s, and 1990s (Reschly, 1997; Reschly, Kicklighter, & McKee, 1988). Although this issue had been in the consciousness of special educators and school psychologists for at least a quarter century, several misunderstandings continue to complicate possible resolutions.

Recent data regarding the participation of various groups of students in special education programs is summarized in Table 3. A distinction between two kinds of percentage data is essential to accurate portrayal of these data: percent of group in program vs. percent of program by group. For example, according to the 1990 U. S. Department of Education Office for Civil Rights survey of school districts, African-American students constituted 16.2% of the students in the sample districts, but 34.6% and 21.5% of the MMR and SED populations, respectively (U. S. Department of Education, 1994). These statistics represent the percent of special education category by group, a statistic that has the effect of exaggerating the perception of the degree of overrepresentation of African-American students. The actual percentage of African-American students in the MMR and SED categories was 2.1% and 0.9%, respectively. The latter statistics representing the percent of group in the program provide a more accurate portrayal of the disproportionate minority special education participation (MacMillan & Reschly, 1998; Reschly, 1997).

The results in Table 3 are subject to differing interpretations; however, the principal data-based conclusions are: a) both African-American and Hispanic students are disproportionately represented in special education, but in opposite directions; and b) the difference in proportions of African-American and white students in special education is about 1.5%, due primarily to more black students in the mild MR category. Regardless of the actual proportions, there is widespread belief that special education has been used as a dumping ground for minority students (Artiles & Trent, 1994).

Reasons for overrepresentation have dominated much of the discussion of the issue over the last three decades. It is time to leave that discussion which, to date, has not yielded any definitive conclu-

Table 3. Comparison of Percent of Group in Program and Percent of Program by Group: 1990 OCR Survey

	African American		Hispanic		White	
	% of Group	% of Program	% of Group	% of Program	%of Group	% of Program
MMR	2.10%	34.64%	0.65%	7.60%	0.81%	55.82%
SLD	4.95%	16.61%	4.68%	11.19%	4.97%	69.83%
SED	0.89%	21.47%	0.33%	5.81%	0.69%	70.65%
Per Cent Total Student Population		16.20%		11.54%		67.88%

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Note: Results based on *Sixteenth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act*, 1994.

sions. Instead, it is important now to consider why special education programs are so unacceptable to minority critics. This is a more complex issue than it might first appear. Consider that all evidence regarding minority students overrepresented in special education indicates that they do have achievement or behavior problems. They are not, however, in the views of critics, truly disabled. Given that the students in question do have classroom-related difficulties, then why is special education seen so negatively?

Special education involves significantly greater expenditures of money, about twice as much per student as in general education. There is a much lower student to teacher ratio. The teacher has specialized training and the program is individualized with periodic review and revision as needed. Normally, these are highly desirable characteristics of an education program. So, why is special education unacceptable? One explanation often suggested is that overrepresentation per se is unacceptable. That explanation, however, is not accurate because overrepresentation of minorities in other educational programs such as Head Start and Chapter I is acceptable to critics even though the number of students involved and the degree of overrepresentation is greater than in special education.

This analysis inevitably leads to a consideration of additional reasons for the unacceptability of special education to minority critics. In fact, special education is unacceptable because it is assumed to be stigmatizing, ineffective, a means to re-segregate educational programs by race, and negatively related to positive adult outcomes. In our view, it is to these issues that our attention should be focused, not to the futile exploration of the reasons that overrepresentation occurs. Special education acceptability will continue to be low and minority overrepresentation controversial as long as assertions about stigma, ineffectiveness, re-segregation, and adult outcomes cannot be refuted with solid evidence. The emphasis on improving special education outcomes in this volume is relevant to the disproportionality issue.

Summary. We are pushed by problems in the current system to consider alternatives to conventional referral, assessment, classification, and placement practices. These pushes provide the motivation to consider alternatives. Policy statements over the past decade have described the necessary changes in the system that will permit the delivery of special education services that are more closely related to the needs of children, youth, and families (Advocacy for Appropriate Educational Services for All Children, 1985; Graden, Zins, Curtis & Cobb, 1988; Heller, Holtzman, & Messick, 1982; NASP-NASDSE-OSEP, 1994; Stoner, [illegible], & Walker, 1991; Wang, Reynolds, and Walberg, 1990; Ysseldyke, Dawson, Lehr, Reschly, Reynolds, & Telzrow, 1997; Ysseldyke, Reynolds, & Weinberg, 1984). Although the way to a reformed and more effective special education practice has been charted in a general way, this volume provides descriptions of specific bodies of knowledge, assessment skills, and intervention competencies that are the foundations of practice in the reformed system.

Advances in Assessment and Intervention

We are pulled to delivery system alternatives by advances in assessment and intervention techniques that have the promise to substantially improve the outcomes of special education. Most of this volume is devoted to describing the theoretical and empirical foundations for system design alternatives; therefore, those foundations are discussed briefly in this chapter.

Outcomes Orientation. A major shift to a focus on outcomes rather than intervention inputs or processes is apparent in the reform literature and in the recent IDEA revisions (IDEA, 1997). An outcomes orientation has been applied to analyses of special education reform and to the overrepresentation of minority students in special education (Reschly, 1979, 1997; Reschly & Tilly, 1993). The outcomes orientation means that results with students are the principal criteria to judge the efforts of special educators and related services personnel rather than the traditional measures of number of students served, processes used in delivering services, and places where services were provided. Greater attention to documentation of outcomes is pervasive in general and special education (Ysseldyke, Thurlow, Bruininks, 1992).

In a reformed system all decisions are predicated on outcomes: (a) Poor general education outcomes lead to general education interventions; (b) Results of general education interventions determine if further problem solving occurs or whether the student's rates of learning or behavioral skills are within broadly conceived normal limits; (c) Intensive problem solving within general education assisted by special educators and related services personnel is initiated when general education interventions at stage b are insufficient; (d) Outcomes of these more intensive, high quality interventions determine if special education eligibility and need should be considered; (e) Special education eligibility is determined by factors such as the degree of discrepancy from classroom or district averages and the documented insufficiency of well-designed and carefully implemented interventions (see later discussion); (f) IEPs and other elements of the special education services provided to eligible children are determined by outcomes of intervention efforts; and (g) Transitions within and between

special and general education programs are determined by outcomes of special education programs. Consideration and assessment of outcomes is the cornerstone of the alternative delivery systems described in the literature (Ikeda, Tilly, Stumme, Volmer, & Allison, 1996; Reschly, 1988, 1996; Ysseldyke & Marston, this volume).

The outcomes orientation of special education reform efforts is further enhanced by state specification of standards, goals or outcomes students are to achieve, accompanied by measures of student performance related to the standards, and sanctions for students, teachers, and districts if standards are not met. Although many special education students, perhaps as many as 40% to 50% (McGrew, Thurlow, & Spiegel, 1993), were excluded in the past, current federal legislation (IDEA, 1997) mandates greater involvement of students with disabilities in the district and state assessment programs.

Problem Solving Orientation

Several problem solving approaches have appeared in the literature, with slight variations related to intended population or type of problem (Bergan, 1977; Bergan & Kratochwill, 1990; Gresham & Noell, this volume; Gutkin & Curtis, 1990; Knoff & Batsche, 1991; Rosenfield, 1987). All have common features involving problem definition, direct measures of behaviors, design of interventions, monitoring progress with intervention revisions as necessary, and evaluating outcomes. All are more consistent with the experimental tradition in psychology as well as the short run empiricism described by Cronbach (1975) as a promising replacement for interventions guided by ATI.

Problem solving is an essential component of implementing advances in assessment and interventions. We caution against superficial versions of problem solving, particularly those that do not involve precisely defined problems, direct measures of behavior, pre-intervention data collection, intentional application of instructional design and behavioral change principles, frequent progress monitoring with program changes as needed, and evaluation of outcomes through comparisons to initial levels of performance. Intervention quality can be assessed and criteria for determining intervention quality have been developed and validated (Tilly & Flugum, 1995; Upah, 1998). As Fuchs and Fuchs (1992) noted, "feel good" consultation or problem solving is likely to make the participants (e. g., special and general educators) feel good, with little benefit to students.

Assessment Technology and Decision Making

Significant advances in assessment technology permit greater emphasis on measures functionally related to interventions. Most of these advances can be classified as behavioral assessment procedures (Shapiro & Kratochwill, 1988). The knowledge base for practice has improved substantially with the development of curriculum-based assessment and curriculum-based measurement (Deno, 1985; Howell, Fox, & Morehead, 1993; Howell & Hazelton, this volume; Shapiro, 1989; Shinn, 1989; Shinn, Good, & Parker, this volume). Advances in the assessment of instructional environments provide further technological support to academic and behavioral interventions (Christenson, Ysseldyke, & Thurlow, 1989; Ysseldyke & Christenson, 1987a, 1987b, 1993; Ysseldyke, Christenson, & Kovaleski, 1994; Ysseldyke & Marston, 1990). Parallel advances in behavioral assessment of social and emotional phenomena have led to equally substantial improvements in practice in these areas (Alessi & Kaye, 1983; Gresham, this volume; Shapiro & Kratochwill, 1988).

The assessment technology covering multiple domains of behavior to support practice guided by an outcomes criterion is now available for the first time in the history of special education. Behavioral assessment measures also can be used in decisions about eligibility for various special programs and in decisions about placement (Gresham, 1985, 1991; Shinn, 1988; Shinn, Tindal, & Stein, 1988; Shinn, et al., this volume). It appears that virtually the same students will be identified as needing specialized instruction and social-emotional interventions using behavioral assessment procedures; however, the behavioral assessment procedures yield information useful for intervention planning and evaluation as well as eligibility determination.

Instructional Design

Behavior assessment and instructional analysis are inextricably related in functional assessment of academic behaviors. The marriage of instructional design principles (e. g., Englemann & Carnine, 1982) with behavioral intervention technologies has produced impressive outcomes for students (Becker & Carnine, 1980; Fuchs & Fuchs, 1986; Howell & Hazelton, this volume; Kavale, 1998). Use of this knowledge base produces results that are markedly superior to traditional special education programs or instruction based on presumed ATIs, that is, matching teaching methods to presumed strengths in cognitive style, information processing, or neuropsychological status. Much of system reform is driven by the desire to implement more effective interventions.

Behavior Change

Behavior change principles are well-established (Gresham, this volume; Gresham & Noell, this volume; Kern & Dunlap, this volume; Stoner, Shinn, & Walker, 1991; Sulzer-Azaroff & Mayer, 1991). In addition, characteristics of effective schools and effective teaching are relevant to this discussion (e.g., Bickel, 1990). There is a solid knowledge base for assessment and intervention; however, the remedial programs for most children and youth do not apply all, or even most, of this knowledge base.

Summary. One of the main themes in system reform is improved application of the available knowledge on assessment, instruction, learning, and behavior change. Improved application of this knowledge base will be facilitated by the movement toward noncategorical classification and integration of diverse programs intended to serve children and youth. Reductions in the amount of time devoted to standardized testing to determine eligibility will permit greater opportunities for related services and special education personnel to be involved in functional assessment, intervention design and implementation, and evaluation of student progress.

Alternatives to the Current System

Before discussing changes, the positive features of the current categorical disability system need to be identified. Perhaps the most important positive feature is that the current categorical system has served as: a) a rallying point for advocacy groups and parents to seek support for programs; b) the structure for passage of legislation; and c) the basis for allocation of monies to establish educational services for students with disabilities. The monumental progress made over the past 30 years has occurred within the confines of the present categorical system. Efforts to reform the classification system such as those suggested in this chapter need to provide plausible alternatives to current classification practices in order to ensure the continued social and political support for programs needed by students with disabilities.

The overall goal of the special education disability classification system should be to enhance the quality of interventions and improve outcomes for children and youth with disabilities (Heller, Holtzman, & Messick, 1982; Reschly, 1988, 1996; Reschly & Ysseldyke, 1995). At the same time the categories in the system should be as free as possible of negative connotations, recognizing that no disability classification system will be totally free of all negative connotations. The best solution to these requirements to date is the development of systems organized around the supports services needed by children and youth, with further designation, if needed, of the dimensions of behavior in which supports and services are provided (Graden, et al., 1988; NASP-NASDSE-OSEP, 1994; Rights Without Labels, 1986).

A system based primarily on the supports and services needed by children and youth is most relevant to the mild disabilities that are best understood from a social system perspective. The alternative system may or may not be applied to the medical model disabilities, depending on the choices of advocates and participants in each of those categories. Many advocates in the area of deafness, for example, regard deafness as an essential part of the individual's culture and, in our experience, do not want to lose the identity afforded by the disability designation. In a reformed classification system the biologically-based disabilities such as deafness might continue to be designated by the traditional diagnostic constructs; however, as noted previously, these disabilities typically are not initially identified by school personnel.

Dimensional, Not Typological. Classification systems should be based on dimensions of behavior (reading, social conduct, etc.) rather than typologies of persons. Person typologies involving dichotomies such as disabled/non-disabled, retarded/not retarded, learning disabled-not learning disabled, are never accurate reflections of the diversity of student aptitudes and achievement. In fact, students vary on broad continua by fine gradations (e.g., Shaywitz, et al., 1992). Most current assessment devices reflect these fine gradations, but dichotomous decisions are imposed by the current classification system; for example, persons with IQs below 75 are classified as eligible on the intellectual dimension for a diagnosis of MR. No one, however, actually argues that persons with IQs of 74 or 75 have reliably different characteristics or needs than persons with IQs of 76 or 77. Nevertheless, markedly different educational resources and programs are likely to be provided because those just below the cut score of 75 are eligible and those just above that score are not eligible. These dichotomous decision rules require decisions that virtually identical students do indeed have very different educational needs. We know these are inaccurate decisions about educational needs. We need a classification system that reflects the reality of student differences. A classification system based on broad dimensions with fine gradations would allow accurate description of the status of students without imposing false, either/or dichotomies.

The implication of this change for current entitlement rights is to consider more carefully, "Entitled to what, in what amount or intensity?" The current technology permits measurement of fine gradations of competence and need;

however, there are no natural cutoff points. The most reasonable solution is ***NOT*** to impose precise cutoff points to determine eligibility, rationalizing as we do now, that some way to separate those eligible from those not eligible is necessary and a cut score is needed to accomplish this separation. Rather, the solution is to develop ways of allocating funds to special services and organizing the intensity of the services in ways that correspond to the degrees of need.

Functional, Not Etiological. The current classification system is based primarily on etiology or presumed internal attributes of individuals, for example, SLD is a disorder in a basic psychological process related to learning. These etiological formulations are not functional in that they are not closely related to treatment. A functional classification system has varying applications depending on the level or severity of the disability and the age of the student. For the vast majority of students now classified as mildly disabled, functional classification will mean emphasis on dimensions of behavior related to the school academic curriculum and to essential social competencies. Attempts to use functional classification criteria and programming have been successful and represent enormous promise for improving the current delivery system (e.g., Hewett, Taylor & Arturso, 1968, 1969; Ikeda et al., 1996; Reschly & Tilly, 1993; Shinn, 1989; Tilly, Grimes, & Reschly, 1993). This trend is by no means universal, nor even present in a majority of school districts. Important barriers in the forms of funding mechanisms and disability eligibility criteria exist in most states. These impediments are, however, under careful scrutiny in recent policy papers (NASP-NASDSE, 1994) sponsored by Federal Office of Special Education Programs and greater flexibility in the use of traditional categorical designations is explicitly permitted in federal law (IDEA, 1997; see Prasse & Schrag, this volume).

Multidimensional. All professionals and parents realize that students with disabilities are complex human beings with a wide range of assets and limitations. These assets and limitations occur over multiple dimensions of behavior, many of which are critical to the ultimate success of the individual in coping with current and future demands. Unfortunately, the current classification system suggests that persons with disabilities are different from normal on one or two salient dimensions such as intelligence or achievement. The focus on one or two dimensions rather than the broad range of assets and limitations often leads to undesirable restrictions of programming to those dimensions. For example, although it is well known that a significant proportion of students with SLD have difficulties with social skills, or that the adult adjustment of persons with mild ill be determined to a greater degree by social than academic competencies, current educational programs often ignore the vital areas of social skills and social competencies (Deschler & Schumaker, 1986; Hobbs, 1975a; Morrison, 1987; Reiher, 1992). This occurs in part because of emphases in the current classification system on the limited dimensions of behavior related to achievement and intelligence.

Reliability. Generally, etiological events or internal attributes are assessed less reliably than observable behavior. Obviously some exceptions exist regarding etiological events, but those exceptions occur primarily with biological anomalies such as chromosomal aberrations. Internal attributes or traits are inferred in traditional disability diagnoses from observations of current behavior. Generally, the trait or internal attribute has a much broader meaning than the actual behavior observed. For example, observation of a student's definition of various words commonly obtained on vocabulary subtests of measures of general intellectual functioning might provide part of the basis for an inference about intelligence. Note that the underlying trait or attribute is far more complex than the actual behavior observed. Moreover, the underlying attribute or trait has numerous surplus meanings that may or may not be accurate for the individual or closely related to the actual behavior observed. Many of the measures of internal attributes or underlying traits have poor reliability as well as dubious validity (Salvia & Ysseldyke, 1995). Generally, measures of underlying processes or underlying emotional dynamics are notoriously unreliable.

Over the past 20 years, a technology has been developed for the development of direct measures of student behavior in natural settings (Shapiro, 1989; Shapiro & Kratochwill, 1988; Shinn, 1989). These procedures can be used to develop reliable measures of a variety of dimensions of behavior. These behavior assessment procedures or curriculum-based measures lead to precise determination of discrepancies from average on relevant dimensions of behavior. This information can then be used in allocating services to students with the greatest needs as well as in implementing desirable features of effective interventions (assessment of current status in relation to target objectives, monitoring progress, and evaluating outcomes). The critical point is that the curriculum-based measures or behavior assessment procedures provide reliable information that is directly related to treatment.

Knowledge Base on Effective Intervention. The classification system should facilitate the application of the available knowledge on effective instructional interventions or psychological treatments. That knowledge base is similar in many ways to the major findings in the effective

schools literature. Application of that knowledge base to special education programming has been emphasized in the work of a number of investigators (Bickel & Bickel, 1986; Christenson, et al., 1989; Epps & Tindal, 1987; Fuchs, Deno & Mirkin, 1984; Fuchs & Fuchs, 1986; Fuchs, Fuchs & Deno, 1985; Gerstein, Woodward & Darch, 1986; Leinhardt, Bickel, & Pallay, 1982; Marston, 1988; Morsink, Soar, Soar, & Thomas, 1986; Reynolds & Lakin, 1987; Reynolds, Wang, & Walberg, 1987; Sulzer-Azaroff & Mayer, 1991). Clearly, there is a body of knowledge related to the effectiveness of instructional interventions or psychological treatments. Classification systems that focus on functional dimensions of behavior using curriculum-based or behavioral assessment procedures will facilitate the application of that knowledge base. In contrast, a classification system that focuses on presumed etiology or on factors such as underlying neuropsychological processes or learning modalities that have no relationship to treatment outcomes, interferes with the provision of effective treatment.

Funding

One of the critical purposes of the current classification system involves funding. Classification of a student as disabled produces markedly greater educational resources.

A variety of bases for funding additional services have been discussed for many years (Gallagher, Forsythe, Ringelheim, & Weintraub, 1975; Parrish & Chambers, 1996). The funding system suggested here is consistent with the system reforms described in this paper.

Number of Deficits. The number of deficits exhibited by a student over the functional dimensions of behavior should be one of the bases for generation of additional monies. The idea is simple. Students with significant discrepancies over greater numbers of functional dimensions typically require more special education services, as well as, in many cases, services of greater complexity or intensity.

Degree of Discrepancy. A second funding variable should be the degree of discrepancy on each of the dimensions in which deficits exist. Again, the idea is simple. Larger discrepancies typically indicate greater need requiring greater resources for effective intervention.

Complexity of Intervention. The complexity dimension involves at least two components; the skills or competencies of professionals and the need for special equipment or special environments in order to carry out effective interventions. For example, an intervention with a student exhibiting what now might be called a behavior disorder might involve the addition of a classroom aide over a period of nine weeks during certain periods of the day for the purpose of implementing and monitoring a behavioral intervention. The cost of this intervention may be considerably less than an intervention that requires a fully certified teacher with a masters degree working with a very small group of students over the entire year.

Intensity of Intervention. Intervention intensity includes at least two components; the amount of time required to carry out an intervention over a typical school day and the length of the intervention. Interventions requiring greater intensity should receive more resources than interventions requiring less intensity.

The four funding variables suggested here might be regarded as weighting factors in a regression equation that would yield a total amount of dollars available to support the special education of a particular student. These kinds of analyses using quite different variables, were suggested by Hobbs who noted that gross categories for funding were obsolete. "Such primitive programming need be tolerated no longer. Computer technology provides the means of organizing information in operationally significant units, of specifying resources required to provide specific services, and of tracking events to ascertain outcomes." (Hobbs, 1975a, p. 108). The computer technology today is much more sophisticated and user friendly. Hobbs' hopes for use of computer technology to reduce the use of gross categorical designations of students and funding based on a limited set of programming options were not realized over the past 20 years. The idea, if not sound due to technological limitations in 1975, certainly must be regarded as plausible today. The advantages of a funding system that focuses on variables such as number of deficits over functional dimensions, degree of discrepancies, complexity of interventions, and intensity of interventions would be a well integrated classification system with a consistent philosophy that could be implemented at all stages from screening, prereferral intervention, classification, programming, and funding.

Conclusions

Classification reform and changes in the delivery system have been discussed for at least two decades. Intractable problems in the current classification structure and delivery system detract from the implementation of effective interventions for children and youth with learning and behavior problems. Classification changes as part of delivery system reform are needed to focus attention on effective interventions and the evaluation of outcomes.

The current knowledge base and assessment technology support the development of a classification system based on functional dimensions of behavior and oriented to educational programming and psychological interventions. Application of the available knowledge base and assessment technology is needed to further our common goal of improving the outcomes of educational interventions for children and youth.

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Functional Analysis Assessment as a Cornerstone for Noncategorical Special Education

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Chapter 3

INTRODUCTION

Special education represents an incredibly diverse service delivery system that is called upon to assess and modify behaviors ranging from slow oral reading rates to self-injurious behavior. This diversity of behaviors, sometimes called behavioral or response topographies, makes reliable and accurate assessment strategies that are useful for intervention purposes, a cornerstone of the special education enterprise. For any assessment model to become a cornerstone or foundation for special education, it must be applicable, useful, and effective with a diverse array of behaviors. Although we acknowledge that no one assessment and intervention model can address every possible variation of behavior encountered in special education, *functional assessment* does provide an assessment and intervention model that is conceptually and practically adaptable to a great diversity of behaviors. Functional assessment, as the name implies, seeks to identify and assess the functions of behavior. Once identified, interventions based on these behavioral functions can be implemented to change behavior.

Recently, functional assessment has been featured in a class action suit in Los Angeles Unified School District (LAUSD) (*Chandra Smith v. Los Angeles Unified School District*). A Consent Decree by Judge Laughlin Waters on April 15, 1996 found that the school district was systematically out of compliance with the Individuals With Disabilities Education Act (IDEA) (P.L. 101-476) in 23 areas of federal law. Under the reauthorization of IDEA, Section 615 (k) states:

> (2) Either before or not later than 10 days after taking a disciplinary action described in 615 (k)(1)(a) if the LEA did not *conduct a functional behavioral assessment and implement a behavioral intervention plan* for such a child before the behavior that resulted in suspension described in 615 (k)(1)(a), the agency must convene an IEP meeting to develop an assessment plan to address that behavior; or (b) if the child already has a behavioral intervention plan, the IEP Team must review the plan and modify it, as necessary, to address the behavior (section 615(k)(1)(b).(emphasis added)

LAUSD was also shown to be seriously out of compliance with the California Education Code, specifically Assembly Bill 2586 (Hughes-California Education Code Sections 56520-56524) or Hughes Bill which specifically addresses the needs of students with serious behavior problems. The specifics of the law require that behavioral goals, objectives, and plans be incorporated into a student's Individual Education Plan (IEP). Specifically the law states:

> 3052 (a) General Provisions:
>
> (3) Behavioral intervention plans ***shall be based upon a functional analysis assessment***, shall be specified in the individualized education program, and shall be used in a systematic manner in accordance with the provisions of this section. (emphasis added)

It is clear that both federal and state legal precedents require the use of functional analysis assessment in special education. This chapter considers issues related to the incorporation of a functional model of assessment and intervention into special education. Special education and functional assessment share a number of conceptual and procedural linkages that make them compatible and which can serve as a basis for their integration. Shared characteristics such as an emphasis on habilitation, social validity, focus on the individual, pragmatism, and accountability can lead to the integration of functional assessment into the special education process. The integration of functional assessment into special education will be beneficial to the extent that target behaviors are reliably and accurately assessed, effective interventions based on behavioral functions are implemented with integrity, and intervention outcomes are systematically monitored.

Comparisons Between Traditional and Functional Assessment

To provide a context for discussing functional assessment, it is instructive to contrast it with so-called "traditional assessment" procedures. Most special education eligibility procedures nationwide are based on a traditional, categorical model of assessment in which the primary purpose of assessment is on classification rather than intervention. Different interpretations of assessment information in traditional and functional assessment are based on fundamental assumptions each model makes about the nature and causes of behavior, what is assessed, the uses of assessment information, and the basis of comparisons used by each assessment model. Table 1 compares the core assumptions made in traditional and behavioral assessment. These assumptions are based, in part, on the writings of pioneers in the field of behavioral assessment (Cone, 1978, 1979; Goldfried & Kent, 1972; Hartmann, Roper, & Bradford, 1979; Nelson & Hayes, 1979).

Causes of behavior. Traditional assessment typically views behavior as a *sign* of some underlying personality trait or intrapsychic process. For example, many school psychologists believe that certain subtest profile patterns on intelligence tests are signs of the presence of specific learning disabilities or that certain responses to the Rorschach signify certain personality characteristics. In contrast, functional assessment interprets behavior as a ***sample*** of behavior in a specific situation. Thus, traditional assessment models seek to identify the causes of behavior within the individual whereas functional assessment looks to the external environment for the causes of behavior.

An example highlighting the traditional assessment approach is illustrated by considering a typical referral for reading difficulties in a 4th grade student. A person using a traditional assessment model would probably administer a Wechsler Intelligence Scale for Children-III (WISC-III), a Bender-Gestalt or Developmental Test of Visual-Motor Integration, a Woodcock-Johnson Test of Achievement, and perhaps a Draw-A-Person. Based on this battery of tests, the school psychologist may conclude that the reading difficulty is caused by a visual-perceptual processing disorder (a within-child causal model). A school psychologist adopting a functional assessment model would not likely use any of the above procedures but would try to sample the student's reading behavior and instruction in the classroom.

Table 1. Comparisons Between Traditional and Functional Assessment[1]

TRADITIONAL	FUNCTIONAL
Sign	Sample
Within Person Causality	Environmental Causality
Topographical Description	Functional Analysis
Indirect Methods	Direct Methods
Classification/Diagnosis	Intervention
High Inference	Low Inference
Nomothetic/Inter-individual	Idiographic/Intra-individual
Global	Specific
Cross-Situational Generality	Situational Specificity
Static	Active

[1] Adapted from: M. Goldfried & R. Kent (1972). Traditional versus behavioral personality assessment: A comparison of methodological and theoretical asssumptions. Psychological Bulletin, 77, 409-430.

Purpose of assessment. The primary purpose in a traditional assessment is to classify or diagnose a condition (e.g., specific learning disabilities or emotional disturbances). That is, traditional assessors are concerned primarily with assessing the form or ***topography*** of behavior. The fundamental purpose of functional assessment is to identify the ***function*** or purpose of behavior and to design and implement intervention procedures based on that functional assessment information. Carr (1993) characterized the importance of assessing behavioral function as follows:

> *true behavior analysts have, paradoxically, very little interest in behavior. Thus, knowing that a young boy diagnosed as autistic exhibits self-injury is, by itself, not very interesting. What is interesting is why the self-injury occurs (i.e., of what variables is it a function). . .. Topography (behavior) does not matter much; function (purpose) does . . . behavior is not the thing of interest to behavior analysts. (p. 48)*

Traditional assessment relies on high-inference procedures to make a classification or diagnostic decision. Level of inference refers to the relationship between behavior actually observed and the interpretation, meaning, and/or generalizability of that observation to other situations, settings, or times. The level of inference can

range on a continuum from simple, straightforward, precise descriptions of what was seen or observed (no inference) to quite abstract and remote interpretations of the meaning of behavior (high inference). Functional assessment relies on little or no inference whereas traditional assessment typically adopts a high level of inferential reasoning.

It should be noted that the *Standards for Educational and Psychological Testing* (American Psychological Association, 1985) define validity as the degree to which empirical evidence supports the inferences made from test scores. That is, what is validated in assessment are the ***inferences*** drawn from assessment and not assessment procedures or instruments per se. In functional assessment, the meaning of "test scores" is relatively simple and straightforward because low levels of inference are used to interpret rather straightforward assessment data. For example, frequencies, durations, and rates of behavior require little or no inference for accurate interpretation.

Experts in the field distinguish between functional assessment and functional analysis (Carr, 1994; Horner, 1994; Mace, 1994). Functional assessment utilizes a full range of assessment procedures (e.g., interviews, rating scales, direct observations) that can be used to identify the antecedents and consequences associated with the occurrence of behavior. Functional analysis refers to the systematic experimental manipulation of environmental events (typically in simulated situations) to assess their impact on the occurrence of behavior. The primary purpose of functional assessment/analysis is to identify the function(s) of behavior. Once these functions are identified, interventions can be designed to change target behaviors.

Basis for comparisons. Traditional and functional assessment adopt two contrasting approaches as the basis for comparisons: ***nomothetic-trait approach*** and the ***idiographic-behavior approach*** (Cone, 1988). In the nomothetic-trait approach, the focus is on assessing syndromes or characteristics such as learning disabilities, emotional disturbances, or mental retardation using indirect, norm-referenced instruments (e.g., intelligence, achievement, personality tests). By **indirect** we mean that the behavior or characteristic that is assessed is removed in *time* and *place* from the actual occurrence of behavior. This assessment model uses an interindividual comparative approach. An individual might be classified as atypical based on his or her relative position in a distribution of scores. For instance, a child may be diagnosed with a specific learning disability if there is a 22-point discrepancy between ability and achievement. Similarly, a child may be diagnosed with attention-deficit/hyperactivity disorder if he scores in the 98th percentile on teacher and parent rating scales. Although the nomothetic-trait approach is useful for describing differences among individuals, this approach cannot identify behavioral functions and is not sensitive enough to be used to evaluate the effects or outcomes of interventions.

The idiographic-behavioral approach focuses on the direct assessment of specific behaviors of individuals and measuring those behaviors repeatedly over time. By **direct** we mean that the behavior is ultimately assessed at the ***time*** and ***place*** of its actual occurrence. An idiographic-behavioral approach to assessment is based on the intensive study of individual cases using assessment procedures that are sensitive to intervention effects, unobtrusive, and which can be administered repeatedly over time without being reactive (i.e., they can be used frequently in a short period of time without compromising their accuracy). As such, this approach adopts an ***intraindividual*** comparison approach. An idiographic-behavior model develops its assessment procedures ***inductively*** in collecting a large amount of data on relatively few individuals. This approach to assessment is useful for target behavior selection, customizing interventions, and evaluating treatment outcomes. In contrast, a nomothetic-trait model develops its assessment procedures ***deductively*** in gathering a small amount of data on a large number of individuals (i.e., norms) and does not lend itself to the selection of target behaviors, the design of interventions, or assessing treatment outcomes.

Frequency of assessment. A key distinguishing feature of functional assessment is the repeated measurement of specific behaviors in specific settings or situations over time. A functional assessment model further assumes that behavior is situationally or setting specific unless empirical data indicate otherwise. Functional assessment can be characterized as an active model of assessment in which an individual's baseline level of performance in specific settings and/or situations is used as the criterion against which treatment effects are compared or evaluated. This repeated measurement yields ***intrasubject variability***, which in and of itself, can be used as a basis for functional analysis. That is, intrasubject variability may be functionally related to specific environmental and/or physiological events. In short, variability in the repeated measurement of a single individual is viewed as data that can be identified, isolated, functionally analyzed, and controlled.

Traditional assessment is a static assessment approach and provides global measures of behavior typically at only one point in time. Part of the assumption in a traditional model is the cross-situational occurrence of behavior across settings and the stability of personal traits over time. A good example of this static stance toward assessment can be found

Table 2. Functional Assessment Model for Special Education

I. Type of Behavior Problem
  - A. Excess
  - B. Deficit
  - C. Situationally Inappropriate

II. Dimensions of Behavior
  - A. Frequency/Rate
  - B. Temporality
    1. Duration
    2. Latency
    3. Interresponse Time
  - C. Intensity/Magnitude
  - D. Permanent Products

III. Assessment Methods
  - A. Functional Assessment Interviews
  - B. History/Records
  - C. Behavior Rating Scales
  - D. Direct Observation in Naturalistic Environments
  - E. Experimental Analogue Methods

IV. Quality of Data
  - A. Reliability of Behavior
    1. Interobserver Agreement
    2. Intraobserver Agreement
  - B. Validity of Behavior
    1. Content
    2. Convergent
    3. Treatment
  - A. Description of Antecedent Events
    1. Setting Events
    2. Stimulus Events
  - D. Description of Consequent Events
    1. Social Attention
    2. Escape/Avoidance
    3. Tangible or Activity Events
    4. Automatic/Sensory Reinforcement

V. Social Validation
  - A. Social Significance of Target Behaviors
    1. Consumer Opinions
    2. Habilitative Validity
  - B. Social Acceptability of Intervention Procedures
    1. Pre-treatment Acceptability
    2. Post-treatment Acceptability
    3. Use and Integrity
  - C. Social Importance of Effects
    1. Subjective Judgments
    2. Social Comparisons
    3. Reliable Change Index
    4. Percentage Nonoverlapping Data Points
    5. Habilitative or Functional Effects

in the requirement for a triennial evaluation in special education. This procedure often reconfirms the obvious (the child is having academic and/or behavioral difficulties) and offers virtually no useful information for intervention purposes.

FUNCTIONAL ASSESSMENT MODEL FOR SPECIAL EDUCATION

Table 2 presents a functional assessment model that is a useful heuristic for guiding practitioners through the assessment of any given behavior. The assessment model presented in Table 2 is an extension and modification of the Behavioral Assessment Grid first proposed by Cone (1978). Note that this model is based on consideration of six aspects of functional assessment: (a) type of behavior problem (excesses, deficits, and situational inappropriateness), (b) the dimensions of behavior assessed (e.g., frequency, intensity, duration), (c) assessment methods (interviews, records, rating scales, and direct observations), (d) quality of assessment data (reliability, validity, description of antecedent and consequence events) and (e) social validation. Each of these aspects of functional assessment is described in the following sections.

Type of Behavior Problem

Traditionally, special education has relied upon a classification system in which disabilities (e.g., learning disabilities, emotional disturbance) are classified rather than behavioral excesses and deficits. In functional assessment, the focus is on behavior rather than upon nebulous, and often unreliable, disability designations. By conceptualizing the assessment process in terms of excesses or deficits, ***behavior*** and its direction for change are specified. For example, a student may have behavioral excesses such as aggression, hyperactivity, and noncompliance coupled with behavioral deficits such as poor temper control, failure to follow rules, and difficulty in dealing with peer pressure.

In a traditional model, the end result is the designation of a disability category which has no implicit or explicit implications for intervention. Functional assessment acknowledges that some behavior problems may not necessarily be excessive or deficient, but rather are situationally inappropriate. Although certain behaviors may be considered appropriate in some settings by some people, the same behavior may be viewed as inappropriate and problematic in other settings (e.g., the school) by authoritative adults (e.g., teachers). This conceptualization implies that a given student may have excessive, deficient, and situationally inappropriate behaviors and, as such, multiple targets for intervention can be identified.

Dimensions of Behavior

The functional assessment model stresses the importance of assessing ***objective features*** of behavior such as frequency, temporality (duration, latency, and interresponse time), intensity, and permanent products. By focusing on objective dimensions of behavior, one does not rely on subjective and nebulous factors which have little practical explanatory value (e.g., processing deficits or incomplete superego development).

The objective dimensions of behavior are assessed using observation-based assessment methods. A number of recording methods are designed to assess the four dimensions of frequency, temporality, intensity, and permanent products. ***Event-based*** recording is designed to measure the frequency of behavior and is best used with behaviors that are discrete in nature (i.e.,. they have an obvious beginning and end). Behaviors such as number of correct oral responses to teacher questions, number of times a child hits others, or the number of positive comments to others would be conducive to event recording.

Interval-based methods refer to recording behaviors as occurring or not occurring during specified time intervals. A time unit such as one minute might be divided into six, 10-second intervals. A behavior would be observed as occurring and not occurring during each of the six, 10-second intervals. A behavior such as off-task, for example, might be recorded for 5 (30, 10-second intervals) minutes. If the student was off-task for 15 of the 30 intervals, the student's rate of off-task behavior would be 50%. Interval-based recording methods are best used for behaviors that are continuous and do not have a specific beginning and end.

Time-based recording methods refer to measurement of the temporal aspects of behavior such as duration, latency, or interresponse times. What is being measured in time-based recording is the temporal aspects of behavior, *not* the number of times a behavior occurs, as in event recording. ***Duration*** refers to how long a behavior lasts and is measured in seconds, minutes, or even hours. *Latency* refers to the amount of time elapsed between an environmental event and the initiation or completion of a specific behavior (e.g., elapsed time from a teacher giving a direction to student compliance). ***Interresponse times*** refer to the amount of time elapsed between instances of the same behavior.

Permanent product recording methods refer to the measurement of actual physical by-products of behavior. Written work, vandalized school property, messy restrooms, and the like are amenable to permanent product recording methods.

An important decision facing the person conducting objective assessment is how many behaviors should be observed. This decision is influenced by the nature and severity of the student's behavior problems and the degree of teacher concern with each behavior problem. Some behaviors may be subsets of a larger class of behavior. For instance, noncompliance may represent a class of behaviors that may have a number of behavioral components (e.g., defiance to teachers, cursing, throwing objects, refusing to complete assigned work). In deciding the number of behaviors to be observed, it is useful to organize specific behaviors into larger categories for observation purposes. These larger categories containing specific behaviors are known as ***response classes*** because they describe a "class" or category of behaviors that share some similarities.

Some behaviors, however, may be independent from one another and therefore do not belong to the same response class. For example, a student may exhibit social withdrawal, poor work completion, and temper tantrums. These behaviors for some children may be unrelated. In these cases, persons conducting observation-based assessment would want to systematically observe all behaviors that may be of concern to teachers. If this is not possible, another strategy would be to have the teacher rank order the behaviors in terms of importance to the teacher and for the child.

Assessment Methods

Functional assessment seeks to determine the relationship between environmental events and behavior such that these environmental events can be manipulated or changed to effect changes in behavior. Functional assessment methods have been categorized as (a) ***indirect***, composed of interviews, rating scales, and review of school history/records; (b) ***direct*** **or** ***descriptive*** methods, consisting of systematic behavioral observations in naturalistic settings; and (c) ***experimental methods*** involving standardized experimental manipulations intended to isolate contingencies controlling problem behavior.

Both indirect and direct methods can be used to identify variables controlling behavior in naturalistic settings. However, only functional analysis using experimental methods can rule out other variables as not functional in controlling behavior. A chief disadvantage of experimental functional analysis methodologies is that they are almost exclusively conducted in simulated (analogue) rather than naturalistic settings, thereby limiting their generalizability. A more detailed discussion of how to implement these functional assessment methods is provided in a subsequent section.

Quality of Data

Although the primary purpose of functional assessment is to identify target behaviors and to specify environmental variables of which these behaviors are a function, one must also ensure the quality of the data obtained (i.e., reliability and validity). Some experts in the area of functional assessment argue that traditional concepts of reliability and validity are irrelevant in a functional assessment framework because they are based on assumptions that stand in direct contradiction to behavioral theory (Cone, 1988; Nelson, Hayes, & Jarrett, 1986). For example, classical test theory assumes that individuals possess stable characteristics or traits (true scores) that persist through time, that error scores are completely random, and that fallible scores (obtained scores) result from the addition of true scores and error scores (Ghiselli, Campbell, & Zedeck, 1981).

Reliability in functional assessment can refer to agreement among observers (or some measuring instrument) viewing the same behavior at the same time or the same observer viewing the same behavior at different times (Baer, 1977; Johnston & Pennypacker, 1980; Suen, 1990). The former is by far the most common and is called ***interobserver agreement*** whereas the latter is referred to as ***intraobserver agreement.*** Unlike classical test theory, functional assessment is primarily interested in the degree of homogeneity among observers of behavior rather than the homogeneity of test items in a content domain (i.e., internal consistency reliability). This homogeneity is quantified by a variety of interobserver agreement indices which are expressed in terms of percent agreement rather than correlation coefficients.

Reliability in functional assessment uses the principle of equivalent forms in that it reflects the degree to which two observers are behaving as equivalent measuring instruments (Strosahl & Linehan, 1986). In short, reliability in functional assessment refers to the consistency with which repeated observations of the same behavioral event yield equivalent information (Cone, 1981). Unlike traditional reliability which is concerned with variation across a group of individuals (i.e., subject variance), reliability in functional assessment is concerned with one individual's behavior ***in time*** (Suen, 1990).

Validity is traditionally defined as the quality of inferences drawn from test scores (Cronbach, 1988; Messick, 1988). These inferences are of three basic types: (a) the content domain of interest (content validity), (b) forecasting behavior (criterion-related validity), and (c) the meaning of hypothetical constructs (construct validity). Accordthe *Standards for Educational and Psychological Testing* (American Psychological Association, 1985): "Validity . . . refers to appropriateness, meaningfulness, and usefulness of the specific inferences made from test scores" (p. 9). Functional assessment is concerned primarily with content validity, convergent validity, and treatment validity. It is not concerned with the measurement of hypothetical constructs because only observable behaviors are assessed and is not particularly concerned with criterion-related validity issues.

Validity in functional assessment is the degree to which test behavior is a true reflection of behavior in naturalistic settings (Cone, 1988). Functional assessment validity can be defined as the representativeness of behavior measured in a given setting, at one point in time, and by one observer of behavior measured in other settings, at other times, and by different observers. It can also refer to the correspondence between behavior measured in the testing situation and behavior as it occurs in non-test situations. For example, the extent to which behavior assessed in analogue situations represents the same behavior on the playground is an indicator of the validity of the analogue measure.

Content validity represents the most important and relevant type of validity for functional assessment data. In describing content validity in behavioral assessment, Linehan (1980) suggested the following:

> *the absence of generalizability can be attributed to a failure to represent adequately in the assessment sample the behavioral universe to be predicted . . . It is precisely this lack of assumed generalizability across diverse settings, response classes, etc., which necessitates attention to content validity (i.e., representative sampling from all settings, responses, etc. of interest) in the development of behavioral assessment procedures.* (p. 152)

The fundamental question in functional assessment is as follows: How well does the measurement of behavior in a particular situation at a given point in time by a particular observer represent that same behavior measured in other situations, at other times, and by different observers? That is, good functional assessment invariably takes representative samples of behavior in baseline and makes inferences about the actual rate, intensity, or duration of behavior (Linehan, 1980). Similarly, functional assessors take samples of behavior during treatment and assume that these samples are representative of an individual's actual behavior during treatment. Both scenarios hinge on content validity and hence require some degree of inference in the functional assessment process.

Convergent validity in functional assessment is based on the principle of multiple operationalism which dictates that behavior should be assessed by more than one method and these methods should yield equivalent information. Convergent validity can be defined as the agreement between two attempts to measure the same behavior using different methods (see Campbell & Fiske, 1959). In practice, the evidence for convergent validity would require relative agreement in the assessment of behavior using interviews, behavior rating scales, and direct observation of behavior in naturalistic settings.

It should be noted, however, that the lack of convergence or agreement among different methods and sources of information does not necessarily invalidate the assessment data. Disagreement among methods may reflect the situational specificity of behavior rather than the invalidity of the measurement method used (see Achenbach, McConaughy, & Howell, 1987). The primary purpose of multiply operationalizing behavior is that the lack of agreement should prompt more in-depth assessments of those setting and/or situational variables that may be functionally related to these behavioral differences.

Treatment validity, sometimes referred to as treatment utility, refers to the degree to which assessment information contributes to or is useful in producing beneficial treatment outcomes (Hayes, Nelson, & Jarrett, 1987). A distinguishing feature of functional assessment is the clear relationship between assessment data collected and treatment planning. For instance, a school psychologist conducting a functional assessment may document that classroom disruptive behavior is maintained by social attention. Given this behavioral function, the school psychologist might recommend a treatment utilizing extinction for disruptive behavior (ignoring) and differential reinforcement of other positive behaviors (DRO).

Although the concept of treatment validity evolved from the behavioral assessment field, it shares several characteristics and concepts with the traditional psychometric validity literature. One, treatment validity is based, in part, on the notion of incremental validity, in that it requires that an assessment procedure improve prediction above and beyond existing assessment procedures. Two, treatment validity contains the idea of utility and cost-benefit analysis, which is common in the personnel selection literature (Wiggins, 1973). Three, treatment validity is related to Messick's (1995) evidential basis for test interpretation and use, particularly as it relates to construct validity, relevance/utility, and social consequences. It is entirely possible for an assessment procedure to have construct validity (e.g., intelligence tests), but have little relevance or utility for a particular use of that assessment in treatment planning (i.e., treatment validity). Treatment validity is a fundamental assumption of functional assessment. For any assessment procedure to have treatment validity, it must lead to the unambiguous specification of target behaviors, result in effective treatments, and be helpful in evaluating treatment outcomes.

Description of antecedent events. Antecedent events within the context of operant learning theory refer to events that precede and set the occasion for the occurrence or nonoccurrence of behavior. These antecedent events have been referred to as ***discriminative stimuli*** or ***stimulus events.*** A discriminative stimulus or S^D is an antecedent event occurring immediately prior to and in whose presence a behavior is reinforced. Thus, stimulus control of behavior occurs through the differential reinforcement of behavior in the presence of S^Ds. This is the basis of the operant concept of discrimination. For example, if noncompliant behavior occurs after a teacher gives an instruction to complete work and a student avoids work completion by noncompliance, then the teacher's instruction is an S^D for noncompliance (which in this case would be negatively reinforced by avoidance of task completion). In contrast, a nondiscriminative stimulus or S^Δ refers to a stimulus that does not signal that a behavior will be reinforced. Thus, the teacher giving an instruction for the class to go to recess would be a S^Δ for noncompliance.

Operant learning theory is based on what is known as the three term contingency: Antecedent-Behavior-Consequence (A-B-C) and any analysis of operant behavior must be based on this three-term contingency. Traditionally, antecedent events have been viewed as being secondary to and derived from consequences (Smith & Iwata, 1997) and hence the basis for saying that ***behavior is a function of its consequence***. Recently, more attention has been given to the strength of antecedent events in the design of behavioral interventions (Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991; Dunlap, Kern, dePerczel, Clarke, Wilson, Childs, White, & Falk, 1993; Smith & Iwata, 1997).

Another category of antecedent events are referred to as ***setting events***. Setting events are antecedent events that are removed in ***time*** and ***place*** from the occurrence of a behavior but are functionally related to the occurrence of that behavior. Wahler and Fox (1981) were critical of the field of applied behavior analysis for what they called the undue emphasis on simple and temporally proximate conditions influencing behavior (i.e., reliance on immediate stimulus events). Some authors make the distinction between setting events and what are known as ***establishing operations*** (Michael, 1993). An establishing operation or

EO is an antecedent event that temporarily changes the effectiveness of a known reinforcer. For example, not drinking water on an extremely hot day (deprivation) is an EO altering the effectiveness of water as a reinforcer. Similarly, a child eating too much Halloween candy (satiation) temporarily alters the reinforcement effectiveness of Halloween candy. Other authors (e.g., Mayer, 1995) argue that setting events and EOs describe the same phenomenon and should not be distinguished.

Setting events can be virtually anything that shows a functional relationship with behavior. For example, getting into a fight on the bus on the way to school could serve as a setting event for aggressive behavior and noncompliance at school hours after the fight occurred. Similarly, coming to school without having eaten breakfast may serve as a setting event for inattention and poor work completion prior to lunch time at school. Setting events can also be produced as a result of another treatment for problem behavior in another setting. Forehand, Breiner, McMahon, and Davies (1981) provided a parent training program for parents of oppositional-defiant children which was successful in reducing oppositional behavior in the home. Interestingly, this parent training functioned as a setting event for increasing oppositional-defiant behavior at school.

Setting events are extremely important in a functional assessment of behavior because of their often powerful influences on behavior. Many times, specific stimulus events cannot provide an explanation for or prediction of behavior. Setting events often hold the answer in explaining many behaviors that would otherwise not be forthcoming. It should be noted that setting events can be environmental events (e.g., changes in routines, disruptive social interchanges, a child's pet dying) or physiological (e.g., headaches, flu symptoms, medication ef-

Description of consequent events. As indicated earlier, functional assessment is conducted to determine the *function* that a behavior serves for an individual. There are two fundamental functions that behavior serves: (a) the behavior results in reinforcing consequence (positive reinforcement) and (b) the behavior results in escape, avoidance, or delay of an aversive consequence (negative reinforcement). In other words, any given behavior at any given time in a given situation may result in either obtaining something desirable or the behavior may result in escaping, avoiding, or delaying something undesirable.

O'Neill, Horner, Albin, Sprague, Storey, and Newton (1997) presented an extremely useful heuristic framework for conceptualizing the function of behavior.

Figure 1 depicts this model in which problem behavior results in something desirable or escape/avoidance of undesirable events. These two categories are further subdivided into socially mediated, tangible, and internal stimulation events. It should be noted that within each of these categories, there may be subcategories of controlling environmental events. For example, social attention may be peer-related or teacher-related; escape/avoidance may be task-related or socially related. The goal in functional assessment is to identify as precisely as possible the function of behavior so that interventions based on this assessment can be designed and implemented.

Figure 1. Conceptualization of functions of behavior

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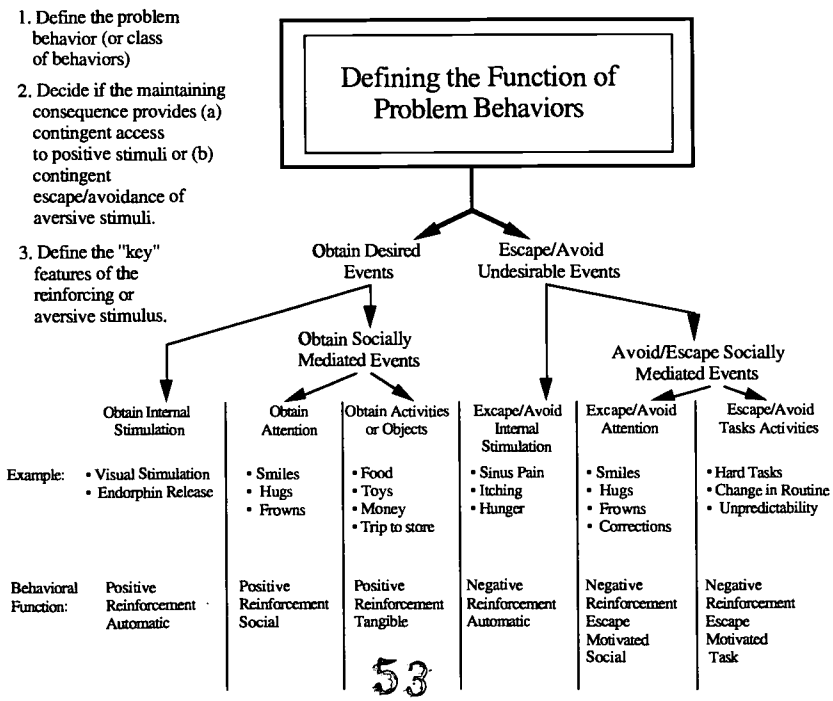


Another consideration in determining behavioral function not addressed in the O'Neill et al. (1997) model is the explanation for problem behavior might be due to the fact that the student does not have the skill in his or her repertoire (i.e., a skill deficit rather than a performance deficit). For example, students who do not have the skill to perform certain tasks may exhibit behaviors that allow them to escape or avoid the task. It is important in conducting functional behavioral assessments to consider the possibility of skill deficits as a plausible explanation for the occurrence of problem behaviors.

Social Validation

Social validity deals with three fundamental questions faced by those responsible for functional assessments in schools: What should we change? How should we change it? How will we know it was effective? Wolf (1978) is credited with originating the notion of social validity, and it has become common parlance among many researchers and practitioners. Social validity refers to the assessment of the ***social significance*** of the goals of an intervention (i.e., the target behaviors selected), the ***social acceptability*** of intervention procedures to attain these goals, and the ***social importance*** of the effects produced by the intervention.

Social validation is a means of assessing and analyzing consumer behavior. Schwartz (1991) indicated that the most important element in studying consumer behavior is the decision-making process. In the study of consumer behavior, this decision making process consists of four steps: (a) recognizing the problem, (b) evaluating alternative solutions, (c) buying the product or service, and (d) evaluating the decision. This decision-making sequence parallels the problem-solving model of behavioral consultation (Bergan & Kratochwill, 1990), which involves problem identification, problem (functional) analysis, plan implementation, and treatment evaluation. Each of these three levels of social validation will be discussed briefly in the following sections.

Social significance of goals. One of the most important aspects of functional assessment is the selection, definition, and assessment of the target behavior. An adequate definition of a behavior does not ensure its social significance. It may even be easier to identify and define simplistic, trivial behaviors than complex, socially significant behaviors. The social significance of behavior can be established in relation to how consumers value certain behaviors. In other words, do consumers consider the behavior to be a socially significant behavior rather than a trivial or insignificant behavior? For instance, reading at grade level or completing math skill sheets with 100% accuracy may be more socially significant than being on-task 100% of the time.

Hawkins (1991) argued that the term social validity is misleading because what is really being measured in social validation is consumer satisfaction. Basically, consumer satisfaction is obtained by asking for a second opinion from another source. If the second opinion agrees with the first opinion, the goals of the intervention are considered "socially validated." If the second opinion disagrees with the first opinion, then the goals are considered socially invalid or insignificant. Disagreement between two opinions, however, merely represents the absence of interobserver agreement and not necessarily the social invalidity of goals, procedures, or outcomes.

Hawkins (1991) makes a strong case for using the concept of *habilitative validity* instead of social validity. Goals, procedures or outcomes should teach or promote behaviors that allow for successful functioning or adaptation to school, home, and community environments. Habilitative validity can be defined as the degree to which the goals, procedures, and/or outcomes of an intervention maximize the overall benefits and minimize the overall costs to that individual and to others (Hawkins, 1991). Noell and Gresham (1993) used a similar heuristic in their model of consultation based on the notion of functional outcome analysis. In this model, the goals of interventions are considered socially valid if the benefits of an intervention (both objective and subjective) outweigh the costs.

Establishing the social significance of target behaviors is an exercise in the identification of functional behaviors. By ***functional*** we mean useful or adaptive behaviors for the individual. The questions asked in the process are: Is this a functional target behavior to change? Will changing it result in short-term and long-term benefits? Is the cost of changing this behavior less than the benefits produced by the change (a positive cost-benefits ratio)?

Social acceptability of procedures. Not all interventions derived from functional assessments are necessarily acceptable to teachers and parents. Kazdin (1981) defined treatment acceptability as a judgment as to whether a given treatment is fair in relation to a given problem, is reasonable and nonintrusive, and is consistent with what a treatment should be. Witt and Elliott (1985) developed a model of treatment acceptability that specified reciprocal interrelationships among four elements: treatment acceptability, treatment use, treatment integrity, and treatment effectiveness. Elliott (1988) suggested that treatment acceptability is the initial issue in treatment selection and use. If a treatment is considered acceptable, then the probability of us-

ing that treatment is high relative to treatments judged less acceptable. Use and effectiveness of treatments are linked by the integrity with which treatments are implemented. Gresham (1989) suggested that the lack of integrity is a major reason for the ineffectiveness of many treatments developed in school-based consultation.

Virtually all of what we know about the acceptability of treatments has been from research conducted with behavioral treatments in analogue situations in which hypothetical treatment scenarios are presented and rated by teachers or parents. Gresham and Lopez (1996) suggested that a more direct index of acceptability would use the concepts of ***integrity*** and ***use*** as direct behavioral indices of acceptability. If a treatment is not implemented as planned, then some aspect(s) of that treatment might be considered unacceptable. Similarly, if a treatment is not used, for whatever reason, it can be considered unacceptable. In this revised conceptualization, integrity and use are behavioral markers for treatment acceptability.

Social importance of effects. The social importance of the effects produced by an intervention establishes the clinical or practical significance of behavior change. That is, does the quality or quantity of behavior change make a difference in an individual's functioning? Does the change in behavior have habilitative validity? Is the behavior now in a "functional" or normative range? All of these questions capture the essence of what is meant by establishing the social importance of intervention effects.

Fawcett (1991) suggested that the social importance of effects could be evaluated at several levels: the level of proximal effects, that of intermediate effects, and that of distal effects. Proximal effects represent changes in target behaviors as a function of intervention (e.g., increased sight work vocabulary, increased social skills, increased math work completion). A number of procedures have been developed to assess the social importance of proximal effects. These include: visual inspection of graphed data, percentage of nonoverlapping data points, reliable change index, and effect size estimates. Some of these will be described in a subsequent section.

Intermediate effects represent concomitant, positive changes in collateral behaviors and outcomes as a function of changes in target behaviors (e.g., reading fluency, peer acceptance, higher math grades). Distal effects represent long-term changes in behavior or outcomes as a function of proximal or intermediate effects (e.g., increased recreational reading, increased friendships, successful completion of advanced math coursework).

Practical approaches to establishing the social importance of effects were first proposed by Kazdin (1977). Three general approaches have been recommended: social comparison, subjective evaluations, and combined social validation procedures. Social comparisons involve comparing an individual's behavior after an intervention with the behavior of relevant peers. Subjective evaluations consist of having treatment consumers rate the qualitative aspects of the child's behavior. Combined procedures take advantage of social comparisons and subjective evaluations in assessing the social importance of effects. The practical significance of behavioral interventions could be bolstered if we could demonstrate that (a) a student's behavior moved into the same normative range (or higher) than nonreferred peers, and (b) treatment consumers felt that the intervention had produced socially important changes in behavior. The combined social validation approach captures not only how much a behavior changed (a quantitative criterion), but also how consumers of intervention view that change (a qualitative criterion).

PRACTICAL GUIDELINES FOR CONDUCTING FUNCTIONAL ASSESSMENTS

As described earlier, functional assessment utilizes a variety of techniques and strategies to assess behavioral function so that interventions based on this function can be identified and used to design intervention. A good functional assessment procedure should include the following:

(a) Systematic observation of the occurrence of target behavior(s) for an accurate, specific definition and measurement of the behavior's frequency/rate, temporality (duration, latency, interresponse times), intensity, or permanent product characteristics.

(b) Specific definition and measurement of a desired behavior that would serve a different function and specific definition of a positive alternative behavior the student could perform that would serve the same function.

(c) Systematic observation of the immediate antecedent events (stimulus events or SDs) associated with each occurrence of the target inappropriate behavior.

(d) Systematic observation of setting events associated with each occurrence of the target inappropriate behavior.

(e) Systematic observation and analysis of the consequences following the display of the target behavior to determine the function the behavior serves for the individual (social attention, access to tangibles or activities, escape/avoidance, automatic reinforcement).

(f) Ecological analysis of the settings in which the target behavior occurs most frequently. Factors to consider should include the physical setting, the social setting, the activities and nature of instruction, scheduling, the degree of independence, the degree of participation, the amount and quality of social interaction, the degree of choice, and the variety of activities.

(g) Review of records for medical and health factors which may influence behaviors (e.g., medication levels, sleep cycles, health, diet.

(h) Review of the history of the behavior including the effectiveness of previously used interventions.

Assessment Procedures

Functional assessment utilizes indirect, direct, and experimental methods to accomplish the above goals. Indirect methods include functional assessment interviews with significant others, behavior rating scales, and systematic review of school records. Direct methods use systematic direct observation of antecedents, behaviors, and consequences in naturalistic environments. Experimental methods use randomly presented experimental conditions representing behavior functions (positive reinforcement, negative reinforcement, and sensory reinforcement) in analogue situations.

The experimental method of functional analysis is rarely used in schools and is typically used with individuals having severe or profound mental retardation and who exhibit self-injurious behavior (SIB). Iwata et al. (1994) summarized 152 cases in which experimental functional analyses have been conducted with SIB. Over 93% of these cases involved clients with severe or profound retardation with over 60% of these cases having genetic or medical conditions (e.g., cerebral palsy, seizures, Down Syndrome). Clearly, the external validity of this method is not well established with other populations and it currently should be reserved for cases showing the above mentioned characteristics.

School records. School records often contain a great deal of useful information for functional assessment. A first step in conducing a functional assessment should be a systematic review of these school records. A useful aide in reviewing school records is the **School Archival Records Search** (SARS) (Walker, Block-Pedego, Todis, & Severson, 1991). The SARS is a systematic recording and quantification of existing school records. The SARS provides information on archival variables usually contained in school records: demographics, special education status (referral, classification, and placement), school transience and attendance, achievement test scores, retentions, disciplinary contacts, Title I services, and negative narrative comments. In addition to these variables, information can probably also be found in school records regarding number of suspensions, previous accommodations or interventions, and records of parent conferences.

Functional assessment interviews. Functional assessment interviews (FAIs) refer to semistructured interviews designed to identify and define target behaviors and to identify possible hypotheses regarding behavioral function. Unlike problem identification and problem analysis interviews in behavioral consultation (Bergan & Kratochwill, 1990), FAIs are more systematic and focus more intensely on the possible functions of behavior.

Appendix B presents an example of a FAI form that has been adapted from the work of O'Neill et al. (1997). FAIs should be conducted with teachers and parents to determine the cross-situational aspects of the student's behavior. FAIs can also be conducted with the student to assess their perspective or understanding of the motivation for engaging in inappropriate behaviors.

Behavior rating scales. Behavior rating scales and checklists can be used as brief methods of identifying target behaviors for intervention. These rating scales and checklists can be extant rating scales or rating scales constructed by practitioners for individual cases. One advantage of practitioner-constructed rating scales and checklists is that informants can rate or check both the behavior and their hypothesized behavioral function. In constructing such a scale or checklist, practitioners might also include the context and antecedent events preceding the behavior. These rating scales would perhaps be most useful if completed prior to the FAI.

Direct observation. Direct observation of antecedents, behaviors, and consequences is the most important aspect of functional assessment. Direct observation should be used to confirm the information obtained from indirect methods described above. A useful method of conducting a descriptive direct observation is an Antecedent-Behavior-Consequence analysis using an A-B-C recording form.

Another useful method is the scatterplot assessment method first described by Touchette, MacDonald, & Langer (1985) which is shown in Figure 3. (See page 51) In this method, the occurrence of the target behavior is correlated with specific times of the day to at least get a temporal analysis of instructional variables and the behavior's occurrence.

In addition to the above descriptive or narrative assessment, there must be a systematic, quantitative recording of the target behavior using recording methods described ear-

lier in this chapter. These can be either frequency counts for discrete behaviors (e.g., acts of aggression) or interval-based recording methods for continuous behaviors (e.g., academic engagement). It is important that the ABC, scatterplot, and quantitative recording of behavior occur consistently across time and situations to ensure the representativeness (i.e., content validity) of the functional assessment.

Summarizing Functional Assessment Data

When enough data have been collected for a functional assessment, the information must be summarized in such a fashion to be useful in making intervention decisions. This summary has three steps: (a) formulating behavioral hypotheses, (b) constructing a competing behaviors pathway model, and (c) comprehensive intervention planning based on behavioral hypotheses and the competing behaviors pathway.

Behavioral hypothesis statements are testable conjectural statements about the presumed function of behavior. Behavioral hypotheses have three criteria: (a) they must be based on information from earlier assessments (records, interviews, ratings, and observations); (b) they must specify variables that are testable, measurable, and can be manipulated by teachers or others in classroom or other settings; and (c) teachers and consultants must agree that hypotheses represent reasonable syntheses from accumulated assessment information.

Behavioral hypothesis statements should be written for both target behaviors and desired alternative behaviors. Here are some examples of behavioral hypothesis statements for inappropriate and desired target behaviors:

> *"John throws his book across the room and refuses to complete teacher assigned work to avoid completing a boring task." "John would complete assigned work if the difficulty and interest level were increased." "Kathy engages in aggressive and disruptive behavior when required to complete drill and practice exercises in math." "Kathy would be more academically engaged in math tasks that require problem solving skills (word problems)." "Frank engages shows off and clowns around in social studies and argues with the teacher because of peer and teacher attention." "Frank would complete assigned classwork if isolated from the rest of the class during social studies independent seatwork."*

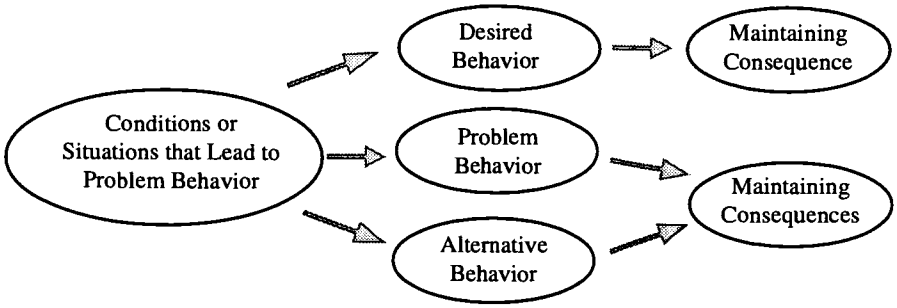
The next step in summarizing functional assessment information is to construct a competing behaviors pathway . A competing behavior pathway model is a graphic ion of the variables (antecedent and consequent) associated with problem behavior (O'Neill et al., 1997). Sprague, Sugai, and Walker (1998) state that a competing behavioral pathway model is useful because it: (a) links behavioral intervention procedures to functional assessment data, (b) matches values, skills, and capacity of the people who will implement the intervention plan, (c) enhances treatment integrity, and (d) increases the logical consistency among different procedures in the comprehensive intervention plan.

Figure 3 is an example of a diagram of a testable behavioral hypothesis statement based on the example provided by O'Neill et al. (1997) and described by Sprague et al. (1998). Four components are necessary for diagramming this statement: (a) setting events, (b) immediate antecedent or stimulus events, (c) problem behavior, and (d) maintaining consequence. Figure 3 shows that the setting event in this example is no peer contact in past 30 minutes. The immediate or triggering antecedent is a math worksheet assignment to which the student responds by noncompliance and using profanities. The maintaining consequence is escape from work completion demands. Thus, the behavioral hypothesis statement is: *"When the student is presented with math worksheet tasks, he exhibits noncompliant behaviors and yells profanities to escape from the tasks."*

The next step in this process is to define alternative or desired behaviors and the consequences associated with these behaviors. An extremely important concept in behavior change is that inappropriate problem behaviors are performed instead of desired or appropriate behaviors because the former behaviors successfully compete with the latter since they are more reliable and efficient (Horner, Dunlap, & Koegel, 1988). The problem behaviors are more reliable in the sense that they produce the desired outcomes more frequently that desired behaviors. The problem behaviors are more efficient in the sense that they are easier to perform than the desired behaviors.

Figure 3 provides an example of a competing behavior model with both the inappropriate and appropriate behavioral alternatives. It is crucial at this point to determine what you want the student to do instead of the problem behavior and what would be an appropriate behavior you want to occur that would result in the same consequences. Note that in this model the desired behavior results in a different consequence (more work assignment) and the alternative appropriate behavior (requesting a break) results in the same consequence (escape from work completion). Readers should also note at this point that it seems clear that the math worksheet assignment for this particular student is highly aversive. This may indicate some curricular modifications and task requirement changes based on the proce-

Figure 3. Competing Behavior Pathway Model



The competing behavior process is organized around functional assessment hypothesis statements and involves the following steps:

- Write the functional assessment hypothesis statement(s);
- Identify what the desired behavior should be, given the problem conditions/ situations;
- Identify an alternative, appropriate behavior that the student may use to obtain the same reinforcing outcome produced by the problem behaviors;
- Identify procedures for ensuring that (a) the problem behavior is not rewarded and (b) alternative, appropriate behavior is positively reinforced;
- Identify procedures for ensuring that the most desired behavior results in more positive reinforcement than all other behaviors;
- Make a list of changes that will make performance of competing (appropriate) behaviors more likely than problem behaviors.

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dures described by Dunlap et al. (1991).

The final step in the process is to select an intervention procedure based on this competing behavior pathway model. Although a comprehensive treatment of the intervention literature is far beyond the scope of this chapter, there are several general considerations that must be presented to highlight the importance of the functional assessment intervention link. The first consideration in intervention planning is to focus on changing antecedent events that will make problem behavior less likely. Recall that antecedent events can either be setting events or stimulus (immediate) events. Numerous antecedent event changes are described by Sprague et al. (1998) including: (a) altering schedule of activities, (b) changing size or composition of groups, (c) shortening task length, (d) interspersing easy with difficult tasks, (e) providing precorrections for appropriate behaviors, and (f) adapting the curriculum or features of the task. Remember, the fundamental principle of altering antecedent events is that they eliminate or decrease stimuli that are associated with occurrence of the problem behavior.

Another set of strategies focus on changing the way in which consequent events are provided to make appropriate competing behaviors more likely. O'Neill et al. (1997) describe two general strategies for altering consequent events: (a) increase the value of the consequence for desired behavior and (b) decrease the value of the consequence for the inappropriate behavior. This logic is based on what is known as the Matching Law which states that the relative rate of any two responses will match the relative rates of reinforcement for those responses (Herrnstein, 1961).

A final set of strategies focuses on directly teaching alternative appropriate behaviors. These strategies are based on a replacement behavior model that is common in social skills intervention work (see Gresham, 1998). According to this logic, some behaviors are not performed because the student does not have the desired behavior in his or her repertoire; an acquisition or skill deficit. As such, problem behaviors occur because the student has no other acceptable or appropriate behavioral alternatives. Intervention strategies in these cases should utilize modeling, coaching, and behavioral rehearsal to teach appropriate behaviors. Once taught, these behaviors can be made to occur more frequently using a combination of antecedent and consequent strategies.

CONCLUSIONS AND CAVEATS

This chapter has presented what to many will be a new approach to the assessment of students at-risk for disabilities in the public schools. Historically, special education has adopted a nomothetic, within-child conceptualization of the "causes" of disabilities. Most frequently, this conceptualization uses norm-referenced instruments measuring intelligence, cognitive processes, perceptual-motor functioning, and/or personality traits that have little or no implications for intervention. We presented an alternative

known as functional analysis assessment that is based on an idiographic, environmental-determinant model of behavior that utilizes both direct and indirect assessment of antecedents, behaviors, and consequences that have direct implications for intervention purposes.

Instead of reporting assessment results in terms of standard scores, percentiles, or some other norm-referenced metric, the functional assessment model reports assessment data in terms of objective features of behavior (frequency, duration, intensity) and the systematic recording of antecedent and consequent events surrounding behavior. The most useful aspect of this process is the formulation of directly testable behavioral hypothesis statements and the diagramming of a competing behavior pathways model directly related to intervention. This approach concentrates on creating environmental conditions that will assist student in displaying positive, appropriate behaviors instead of negative, inappropriate behaviors.

Caveats

In spite of the promise functional assessment holds for special education, there are some limitations of this approach that should be discussed. A special issue of **Behavioral Disorders** highlights limitations and caveats of generalizing functional assessment procedures to all students with disabilities. Nelson and colleagues (Nelson, Roberts, Mathur, & Rutherford, in press) conducted a literature review of 97 studies that used functional analysis procedures over the past 10 years. Of the 458 participants in these studies, 88% (n=405) were individuals having low incidence disabilities (e.g., severe and profound mental retardation) with only 12% (n=53) having high incidence disabilities (e.g., learning disabilities, mild mental retardation, emotional and behavioral disorders). Approximately 42% of the studies targeted self-injurious behavior, 25% aggressive behavior, and 18% disruptive behavior with the remaining 15% being other behaviors (property destruction, noncompliance, stereotypy). Over 60% of the functional analyses were conducted in clinical settings (e.g., hospitals) with only 23% being conducted in school settings.

Nelson et al. (in press) aptly point out that most of what we know about ***functional analysis*** is based on low-incidence disability groups conducted in clinical settings. In the same issue, Gresham, Quinn, and Restori (in press) conducted a brief review of studies published in the *Journal of Applied Behavior Analysis* (1995, 1996, and 1997) and noted that virtually all of this literature used simulated (analogue) assessments rather than assessments conducted in naturalistic settings with persons having severe and profound mental retardation, and targeting self-injurious behavior. It should be noted that these commentaries are restricted to functional analysis research and **not** functional assessment research. Currently, functional analysis research suffers from threats to external validity in terms of generalizing outcomes to other participants, settings, and researchers.

In an insightful article critiquing the use of functional analysis assessment in schools, Walker and Sprague (in press) suggest that there are two models or approaches to assessment of behavior problems. One model, termed the *longitudinal* or *risk factors exposure model*, grew out of research on conduct disorders and seeks to identify molar variables operating across multiple settings that put students at risk for long-term pejorative outcomes (e.g., delinquency, arrests, school dropout). The second model, called the *functional assessment model*, seeks to identify micro variables operating in specific situations that are sensitive to situational contingencies. Both models are useful, but answer quite different questions.

Walker and Sprague (in press) suggest the following: If your goal is to understand and manage problem behavior in a specific setting, then functional assessment is a useful procedure. This is a legitimate goal and has been the focus of this chapter. If your goal is to understand the variables that account for risk across multiple settings and what the student's future is likely to involve, then you need to know something about the student's genetic-behavioral life history (i.e. risk factors). This is the goal of longitudinal research and is not of pressing concern to school study or IEP teams in schools. Admittedly, the functional assessment model (particularly functional analysis) suffers from several threats to external validity and one should not assume that the same results can be generalized to other populations, methods, settings, and behaviors.

In sum, there are many reasons for adopting a functional assessment model for use with students at-risk for and having disabilities. This chapter has outlined many of those procedures and the assumptions upon which they are based. We are also convinced that future research will provide data showing the applicability of these procedures across a wide range of behaviors, settings, and students. The key to accomplishing this, we think, is a team approach in which no one professional group (e.g., school psychologists) takes ownership of the functional assessment process.

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Appendix A: Glossary of Terms

Behavioral Function. The function of behavior refers to the purpose that behavior serves for the individual. Behavioral functions typically fall into five categories: (a) social attention (positive reinforcement), (b) access to tangibles or activities (positive reinforcement), (c) escape, delay, or avoidance of aversive tasks or activities (negative reinforcement), (d) escape or avoidance of other individuals (negative reinforcement), and (e) internal stimulation (sensory reinforcement).

Behavioral Hypothesis. A behavioral hypothesis is an objective, testable, and manipulable statement about the presumed function of behavior.

Competing Behaviors. Competing behaviors refer to the situation in which two behaviors, one appropriate and one inappropriate, compete with each other based on the reinforcement value of each. Behaviors that are more efficient (easier to perform) and reliable (produce more frequent reinforcement) will compete more effectively with other behaviors that are less efficient and reliable.

Content Validity. Generally, content validity in functional assessment refers to the representativeness of one behavior measured in a particular setting at one point in time by one observer compared to the measurement of that same behavior measured in a different setting at other points in time by different observers.

Convergent Validity. Refers to the general agreement or convergence of different assessment methods measuring the same behavior. Convergent validity can be defined as the agreement between two or more attempts to measure the same behavior using different methods. This is sometimes called triangulation of assessment methods.

Dimensions of Behavior. The dimensions of behavior refer to the objective features of behavior such as frequency, rate, duration, latency, interresponse times, intensity, and permanent products of behavior.

Direct Functional Assessment. Direct functional assessment measures behavior at the time and place of its actual occurrence using direct observations of behavior in natural environments (e.g., classrooms, playgrounds, hallways).

Duration Recording. Duration refers to the amount of time a behavior lasts from its beginning to its end. Duration recording can be converted to a percentage by dividing the elapsed time a behavior lasts by the total time observed and multiplying by 100. It is a measure of elapsed time when the target behavior *is* occurring.

Frequency Recording. Frequency recording refers to counting the number of times a behavior occurs and is most appropriate for discrete behaviors. Typically frequencies are converted into rates by the following: Rate= Frequency/ Time Observed.

Functional Analysis. The systematic experimental manipulation of consequent events, typically in an analog situation, to determine the function of behavior. Functional analysis typically manipulates four conditions: social disapproval (positive reinforcement), academic demand (negative reinforcement), alone (automatic or sensory reinforcement), and play (a control condition).

Functional Assessment. The full range of procedures that can be used to identify the antecedents and consequences associated with the occurrence of target behaviors. These procedures can be indirect (e.g., interviews, rating scales, and record searches) and direct (systematic observation of behavior in naturalistic settings).

Idiographic. Idiographic refers to comparing an individual to his or her own levels of performance by the repeated measurement of behavior over time. This is sometimes called intraindividual comparison.

Indirect Functional Assessment. Indirect functional assessment assesses behavior removed in time and place from the actual occurrence of behavior. These methods include functional assessment interviews, behavior rating scales or checklists, and reviews of school files and/or medical histories.

Interresponse Times. Interresponse times (sometimes called IRTs) are a measure of elapsed time between occurrences of the same behavior. It is a measure of elapsed time when the target behavior is *not* occurring.

Interval-Based Recording. Interval-based recording methods are most useful for measuring continuous rather than discrete behaviors. In interval recording, time blocks are divided into smaller time intervals (e.g., 10, 15, or 20 seconds) and behavior is recorded as occurring or not occurring during each interval. Variations include whole interval, partial interval, point time sampling, or sequential point time sampling.

Latency Recording. Latency recording refers to the amount of time elapsing between an environmental event and the initiation or completion of a behavior. It is a measure of elapsed time when the target behavior is *not* occurring.

Nomothetic. Nomothetic refers to comparisons of individuals to other individuals to determine relative levels of performance; typically using norm-referenced assessment instruments. This is sometimes called interindividual comparison.

Performance Deficit. A performance or motivational deficit (sometimes called a "won't do" problem) refers to a behavior in the student's repertoire but it is not performed because it does not compete successfully with other behaviors.

Permanent Product Recording. Permanent product recording describes the measurement of the by-products or physical results of behavior.

Reliability. Reliability in functional assessment refers to the agreement among observers viewing the same behavior at the same time (interobserver agreement) or the same observer viewing the same behavior at different times (intraobserver agreement).

Setting Event. A setting event is an antecedent event removed in time and/or place from the occurrence of a behavior that has an effect on the occurrence of that behavior. Setting events can also temporarily alter the effectiveness of a known reinforcer for behavior.

Skill Deficit. A skill or acquisition deficit (sometimes called a "can't do" problem) refers to a behavior not being in a student's repertoire and thus must be directly taught to the student.

Stimulus Events. Stimulus events, sometimes called discriminative stimuli, immediately precede a behavior and signal that the behavior will be reinforced in its presence.

Topography of Behavior. The topography of behavior refers to what the behavior looks like or its form. Behavioral topography is not particularly useful in a functional assessment because different behaviors may have different functions for different individuals, the same behaviors for different individuals may serve the same function, or different behaviors for the same individual may serve the same function.

Traditional Assessment. Traditional assessment refers to a nomothetic, within-child, high inference form of assessment that typically relies on norm-referenced assessment instruments and whose primary purpose is classification and diagnosis rather than intervention.

Treatment Integrity. Treatment integrity, sometimes called treatment fidelity, refers to the extent to which an intervention is implemented as planned or intended.

Treatment Validity. Treatment validity refers to the degree to which an assessment procedure(s) contributes to beneficial treatment outcomes. If an assessment procedure has a clear relationship between assessment data collected and intervention planning, it has treatment validity.

Appendix B: A Functional Assessment Interview Form

Functional Assessment Interview Form

Name of Student _____ Age _____ Date _____

Interviewer _____ Respondent _____

A. DESCRIBE THE BEHAVIOR(S)

1. What are the behaviors of concern? For each behavior, define the topography (how it is performed), frequency (how often it occurs per day, week, month), duration (how long it lasts when it occurs), and intensity (What is the magnitude of the behaviors: low, medium, or high)? Does it cause harm to others or the student?

	Behavior	Topography	Frequency	Duration	Intensity
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

2. Which of the behaviors above occur together? (e.g., occur at the same time; occur in a predictable "chain"; occur in the same situation).

B. DEFINE ECOLOGICAL EVENTS THAT MAY AFFECT BEHAVIOR(S)

1. What medications is the student taking (if any) and how do you believe these may affect behavior?

2. What medical complications (if any) does the student have that may affect his or her behavior (e.g., asthma, allergies, seizures)?

3. Describe the extent to which you believe activities that occur during the day are *predictable* for the person. To what extent does the student know the activities that will occur (e.g., reading, lunch, recess, group time)?

4. About how often does the student get to make choices about activities, reinforcers, etc.? In what areas does the student get to make choices (academic activity, play activity, type of task)?

5. How many other people are in the classroom setting? Do you believe that the density of people or interactions with other individuals affect the target behaviors?

6. What is the staffing pattern? To what extent do you believe the number of staff, training of staff, quality or social contact with staff, etc. affect the target behaviors?

7. Are the tasks/activities presented during the day boring or unpleasant for the student, or do they lead to results that are preferred or valued?

8. What outcomes are monitored regularly by you and/or your aide (frequency of behaviors, skills learned, activity patterns)?

C. DEFINE EVENTS AND SITUATIONS THAT PREDICT OCCURRENCES OF TARGET BEHAVIORS

1. Time of Day: When are the behaviors most likely? Least likely?

Most likely _____

_____

Least likely _____

---

2. Settings: Where are the behaviors most likely? Least likely

Most likely _____

_____

Least likely _____

---

3. Social Control: With whom are the behaviors most likely? Least likely?

Most likely _____

_____

Least likely _____

---

4. Activity: What activity is most likely to produce the behavior? Least likely?

Most likely _____

_____

Least likely _____

---

5. Are there particular situations, events, etc. that are not listed above that "set off" the behaviors that cause concern (particular demands, interruptions, transitions, delays, being ignored, etc)?

6. What would be the one thing you could do that would be most likely to make the undesirable behavior(s) occur?

D. IDENTIFY THE "FUNCTION" OF THE UNDESIRABLE BEHAVIOR(S). WHAT CONSEQUENCES MAINTAIN THE BEHAVIOR(S)?

1. Think of each of the behaviors listed in Section A and define the function(s) you believe the behavior serves for the student (i.e., what does he/she get and/or avoid by doing the behavior)?

	Behavior	What does he/she get	What does he/she avoid
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

2. Describe the student's most typical response to the following situations:

   a. Are the above behaviors more likely, less likely, or unaffected if you present him or her with a difficult task?

   b. Are the above behaviors more likely, less likely, or unaffected if you interrupt a desired event (e.g., talking with peer, reading a book, etc.)?

   c. Are the above behavior(s) more likely, less likely, or unaffected if you deliver a "stern" request/command/reprimand?

   d. Are the above behaviors more likely, less likely, or unaffected by changes in routine?

e. Are the above behaviors more likely, less likely, or unaffected if something the student wants is present, but he/she cannot get it (i.e., a desired object that is visible but out of reach)?

f. Are the above behaviors more likely, less likely, or unaffected if you are present, but do not interact with (ignore) the student for 15 minutes?

g. Are the above behaviors more likely, less likely, or unaffected if the student is alone (no one else is present)?

E. DEFINE THE EFFICIENCY OF THE UNDESIRABLE BEHAVIORS

1. What amount of physical effort is involved in the behaviors (e.g., prolonged, intense tantrums vs. simple verbal outburst, etc.)?

2. Does engaging in the behaviors result in "payoff" (getting attention, avoiding work) every time? Almost every time? Once in awhile?

3. How much of a delay is there between the time the student engages in the behavior and receiving the "payoff?" Is it immediate, a few seconds, longer?

F. WHAT EVENTS, ACTIONS, AND OBJECTS ARE PERCEIVED AS POSITIVE BY THE STUDENT?

1. In general, what are things (events/activities/objects/people) that appear to be reinforcing or enjoyable for the student?

G. WHAT "FUNCTIONAL ALTERNATIVE" BEHAVIORS ARE KNOWN BY THE STUDENT?

1. What socially appropriate behaviors/skills does the student perform that may be ways of achieving the same *function(s)* as the behaviors of concern?

2. What things can you do to improve the likelihood that a teaching session will occur smoothly?

3. What things can you do that would interfere with or disrupt a teaching session?

H. PROVIDE A HISTORY OF THE UNDESIRABLE BEHAVIORS AND THE PROGRAMS THAT HAVE BEEN ATTEMPTED

Behavior	How long has this been a problem?	Programs	Effect
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

FUNCTIONAL ASSESSMENT INTERVIEW SUMMARY FORM

Name of Student _____ Date(s) of Interviews _____

Person(s) Interviewed _____

Behavior Description

1. What were the behaviors of concern that were described in the interview(s)?

2. Were there two or more behaviors that were described as consistently occurring together as a group or class?

Potentially Relevant Personal and Environmental Features

1. What were the environmental features (persons, places, activities, types of interactions, etc.) that were described as being relevant to the occurrence of problem behavior?

2. What were the medical/physiological and educational skill factors (e.g., communication) that were described during the interview(s) as being relevant to the occurrence of behaviors?

Potential Functions/Maintaining Reinforcers

1. What were the potential functions that the behaviors were described as serving? What were the maintaining reinforcers or consequences that were described?

FUNCTIONAL ASSESSMENT OBSERVATION SUMMARY FORM

Name of Student _____ Dates of Observation _____

Behavior Description

1. What specific behaviors occurred?

2. Were there two or more behaviors that consistently occurred as a group or class? If so, list the group(s) or class(es).

Behavior Prediction

1. Did the behaviors primarily occur during specific time periods? If so, list the periods and activities involved (if known).

2. Were there periods when the behaviors consistently did not occur? If so, list the periods and activities involved (if known).

3. During the periods when the behaviors occurred, were there setting events or stimuli which were consistently related to their occurrence? If so, list the events or stimuli (demands, transition, being alone).

Behavior Function

1. What function did the behaviors appear to serve for the person, according to those recording data?

2. What were the consequences that were typically provided when the behaviors occurred?

This interview form was adapted from O'Neill, Horner, Albin, Sprague, Storey & Newton (1997) *Functional assessment of problem behavior: A practical assessment guide.*(2nd ed). Pacific Grove, CA: Brooks/Cole.

Noncategorical Special Education Services with Students with Severe Achievement Deficits

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Chapter 4

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INTRODUCTION

In school systems throughout the country, educators routinely convene in multidisciplinary team meetings for the purpose of making special education eligibility decisions. The process typically begins when a general education teacher is concerned about the poor academic performance of a particular student in his/her classroom. The major option for general education teachers to secure additional resources to help the student learn more efficiently is special education. To receive special education services, a student must (a) demonstrate educational need, usually with severe low achievement; and (b) have an identified disability, usually by meeting specified criteria on a "psychoeducational evaluation."

The psychoeducational evaluation generally consists of extensive testing by a variety of specialists (e.g., school psychologists, speech and language pathologists, special education teachers) who will later serve as multidisciplinary team members. The evaluation is intended to evaluate educational ***need*** and provide a differential diagnosis of ***disability***. A differential diagnosis includes ***whether*** there is a disability and, if so, ***which*** one of a number of potential disabilities is causing the learning problem. That is, students must be eligible for special education under a particular special education category. Most commonly, if the student has severe achievement problems, the potential disability categories are nondisabled, learning disability, mental retardation, or speech and language impairment.

Unfortunately, although need, in terms of severe achievement problems, may be readily apparent to all team members, the team process often gets "bogged down" in determining the presence or type of disability. As a result, a student with severe achievement problems may not be eligible for special education because a specific disability cannot be documented. When the team becomes bogged down, they may choose to (a) keep searching for the disability which requires additional testing, (b) ignore the data and employ an "override" provision of many disability eligibility definitions, or (c) deny the student special education services until the pattern of failure is so severe that the student is eligible. Regardless of outcome, the team must spend considerable time, effort, and resources sorting through the information for signs of a specific disability before any significant intervention efforts can be undertaken.

This bogged-down process occurs every day in nearly every school in every school district in the United States with no sign of abatement. In fact, there is some evidence to suggest that this scenario is occurring more frequently than ever before given the increasing percentage of students identified as eligible for special education in the mild disability categories in recent years (US Department of Education, 1995).

Concerns with Categorical Assessment and Identification

The assessment activities required for categorical special education for mild disabilities remain a principal target of criticism in today's special education culture (Reynolds & Heisted, 1997). The "bogged down" special education eligibility process has resulted in a process that is expensive (Ysseldyke & Thurlow, 1984), inconsistent in outcomes (Ross, 1990; Shepherd, Smith & Vojir, 1983; Singer, Palfrey, Butler & Walker, 1989), and frequently subverted. Nearly every task force or research summary since the early 1980s, including Heller, Holtzman, and Messick (1982), Ysseldyke and Thurlow (1984), and the joint report of NASP/NASDSE (1994) has concluded that there is no evidence that this categorical identification system contributes to improved student performance.

The assessment difficulties inherent in a categorical disability model for providing services to students with severe achievement problems are summarized elegantly in a document recently released by the US Department of Education (1994) titled the *National Agenda for Achieving Better Results for Children and Youth with Disabilities*. The

National Agenda was developed by investigating the perceptions of interdisciplinary focus groups of special and general education professionals, parents, advocates, and researchers regarding ways to improve services to persons with disabilities. Its mission was to identify barriers to improved outcomes for persons with disabilities, and strategic activities to improve outcomes. Most of the concerns about special education assessment had to do with issues of identification. The *National Agenda* concluded that:

The current assessment process is being overused for labeling and placement purposes rather than for instructional planning. Alternative methods of assessing the skills and needs of children and youth should be developed (p. 20).

In particular, the *National Agenda* identified four assessment barriers to improved outcomes:

1. Overidentification of students as having disabilities (based on race, language, ethnicity, certain disability categories),
2. Large amounts of money needed for programming are spent on identification,
3. Tests are culturally biased, not functional, and are administered by untrained personnel, and
4. The assessment process is often static rather than dynamic.

Yet despite recognized negative consequences, categorical assessment and identification testing remain a principal activity in schools. School psychologists still find themselves in positions where their major job focus is the testing and placing of students into special education via a categorical model (Hutton, Dubes, & Muir, 1992). Discussion of how to "find" disabilities at conferences and in the professional literature dominates attention and distracts efforts from critical special education issues such as the ***effectiveness*** and ***quality*** of the services the students receive.

Purpose of the Chapter

We argue that the ***categorical*** assessment and identification of students with severe low achievement may be the biggest barrier to improved services. We also argue that, with attention to the available research literature, assessment and identification may be the most solvable of special education problems. The first purpose of this chapter is to understand the reasons why categorical assessment and identification for students with severe achievement needs is indefensible. If a categorical assessment system is indeed inefficient, expensive, and laborious, then it should be based on ***either*** sound science or core social values. A full understanding of the ***actuarial consequences*** of the specific assessment approaches used also is essential in evaluating both the science and values of the categorical system. In this chapter, we argue that the categorical system does not meet either criteria and detail why.

The second purpose of this chapter is to provide a viable alternative to expedite the assessment and decision-making process of educators when they are confronted with students with severe achievement needs. This chapter proposes more effective and efficient special education through a ***noncategorical*** model based on (a) identification and eligibility decisions predicated on ***educational need*** in an ***ecological*** context, (b) ***model-driven*** assessment and decision-making practices, and (c) adoption of intervention services based on ***outcomes*** and ***continuous improvement.***

Background on Categorical Special Education for Students with Severe Achievement Need

With the exception of South Dakota, Massachusetts, and most recently Iowa, states provide special education services to students with severe academic problems through three major categorical mechanisms, learning disabilities (LD), mental retardation, and speech and language services (SL). The specific names for these major categories vary from state to state.

The number of students and the percentage of the total special education population served according to the *Seventeenth Annual Report to Congress on the Implementation of The Individuals with Disabilities Education Act* (1995) are presented in Table 1.

More than half of the persons identified with disabilities in the United States are within the category of learning disabilities. Another 21% of identified students are categorized as having speech and language disabilities. Most of these students with speech and language disabilities can be characterized as having serious academic difficulties whose ***cause*** is attributed to speech and language disabilities. If taken together, the LD and SL categories comprise almost three of every four students identified with disabilities. When the category of mental retardation is included, most students with disabilities (84%) are included in the discussion.

Problems arise, however, when adding the entire range of students identified as mentally retarded to the population of students with severe achievement problems. Within the category of mental retardation, students with severe academic problems alone typically are identified as mildly mentally retarded (e.g., educably mentally retarded, EMR). Some authorities (MacMillan, Siperstein, & Gresham, 1996) suggest that this group of students be recognized separately from other cases of mental retardation (p. 357) where students display serious developmental delays across the be-

Table 1. Number and percentage of the total special education population of students served under the categories of learning disability, educably mentally retarded and speech and language impaired.

Category	Number of students	Percent Increase 92-93 to 93-94	Percent of students with disabilities
Learning Disabilities	2,444,020	3.3	51%
Speech and Language	1,009,379	1.1	21%
Mental Retardation	532,365	4.1	11%
Total w/o MR	3,453,399		72%
Total	3,985,764		83%

havioral spectrum. Federal reports, however, do not distinguish among subtypes of mental retardation so gaining an idea of the contribution of members of this category to the overall number of students with severe academic problems is difficult.

"True" Objective Disability Perspective

Implicit in differential diagnosis into one of the three mild disability categories is an assumption that they are composed of independent, non-overlapping groups with criteria validated by science. This assumption suggests that each of the three major disability categories is unique and thus analogous to three distinctly different holes in a pegboard; shape solely determines which peg fits into a particular hole. Once we know the "shapes," presumably we can specify psychometrically sound assessment procedures to pinpoint which shape any pegboard is. In categorical special education, it is the ***presumed cause*** of a specific disability (i.e., the shape of the peg) that solely determines which students are served in a particular disability category.

This perspective is one of an "objective" disability (Ysseldyke & Algozzine, 1982). Objective disabilities are presumed to have an organic, biological, and scientific basis (e.g., blindness, deafness, and orthopedic impairment). In practice, the three mild disabilities frequently are treated as "true" objective disabilities. In contrast, Ysseldyke and Algozzine, (1982) suggest another classification scheme of a ***subjective*** disabilities grouping that is derived through beliefs, advocacy, and consensus. The main difference between the two broad disability types is that the subjective disabilities are related to social, economic, and contextual variables within educational systems while the objective disabilities are not, resulting in two qualitatively different classification systems (Gelb & Mizokawa, 1986).

From a "true" or objective disabilities perspective, two predictions seem plausible. First, some small differences in prevalence across states and communities would be expected. However, these differences should be minor without clear explanation. Second, it would be expected that there would be consistent, if not identical, definitions and identification practices across states.

Differences in Prevalence

From the perspective that disabilities are inherent, within-student characteristics with an objective reality that is not contextually determined, the ideal explanation for observed prevalence differences (US Department of Education) would be that disabilities are not equally prevalent in all states. Consistent with this perspective, Singer et al., (1989) note that "some variability may come from differences in the true prevalence of handicaps across jurisdictions" (p. 262). Thus, one state (e.g., Alabama), may actually have more students with "true" mental retardation than they do students with "true" learning disabilities. Other states may have the prevalence rates reversed. However, the difference in prevalence rates should be small as found with other more objective disabilities like hearing and vision impairment (US Department of Education, 1995). With respect to hearing impairment, for example, the incidence rate is remarkably close to .14% of the school-age population by state.

In reality, the percentage of students in the mild disability categories varies substantially by state. Furthermore, these large differences in prevalence rates are unexplained. Evidence of these differences is available by examining federal documents such as the *Seventeenth Annual Report to Congress on the Implementation of the Individuals with Disabilities Educational Act* (1994). According to this report, during the 1992-1993 school year, the percentages of students identified with learning disabilities varied from a high of 9.3% of the general student population in Massachusetts to a low of 2.8% in Georgia. Even more notice-

able differences exist among the ***distributions*** of disability categories within states. For example, Delaware classified 70% of its special education population as LD, yet Georgia classified only 33% as LD. Indiana categorized 31% of its special education population as speech and language impaired while New York categorized only 11%. Alabama identified 28% of its special education population as mentally retarded while New Jersey identified only 3%.

Differences in Disability Definitions

Compounding the difficulty of examining differences in prevalence of mild objective disability categories is the lack of consistent definitions and identification practices. If objective mild disabilities were supported by scientific evidence, then one would expect a uniform set of assessment and identification practices across states and communities. That is, the practices and criteria used to identify a student as mildly mentally retarded would be the same in Maryland and in Ohio. Likewise, the practices used to identify a student as learning disabled in Oregon would be the same as in California.

It is clear, however, that there are no consistent criteria across states for the three mild disability categories. Federal definitions in the Individuals with Disabilities Education Act (IDEA) are fairly ambiguous and federal attempts to prescribe regulations have historically been met with resistance. States are obligated to provide their own specific eligibility regulations consistent with the definitional language of IDEA.

In the case of the definition of learning disabilities, IDEA defines it as:

> A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, read, write, spell, or do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not apply to children who have learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, emotional disturbance, or environmental, cultural or economic disadvantage (34 CFR §300.7).

States operationalize this broad definition in a number of different ways. As many as 11 different approaches have been used historically to define learning disabilities (Hamill, 1990). Several surveys (Mercer, Forgnone, & Wolking, 1976; Mercer, Hughes, & Mercer, 1985; Mercer, King-[illegible], & Mercer, 1990) have been conducted to examine the degree to which states' criteria are similar. In the most recent survey, (Mercer, Jordan, Allsopp, & Mercer, 1996) the influence of the IDEA definition was apparent. Most states emphasized a discrepancy between a student's ability and achievement as the cornerstone of a learning disability. Despite this general agreement, there was considerable variability in the way the ability achievement discrepancy is calculated. Five different general methods were observed with variability as to specifics (e.g., 1 standard deviation vs 1.5 standard deviation discrepancy) within each general method. At least three states did not specify the assessment and identification criterion and left it to individual school districts to pick their method (Mercer et al., 1996).

CORE SOCIAL VALUES DEFINING MILD DISABILITY CATEGORIES

If the assessment and remediation of mild disabilities cannot be supported from an objective, scientific perspective, ***and*** this perspective generates the undesirable consequences identified earlier in this paper, then another defensible perspective must be offered. Failure to do so would suggest that special education for students with mild disabilities is not only expensive with little documentation of significant outcomes for children, but also that the system on which services are allocated and delivered is haphazard or capricious.

We argue strongly that special education services for students with severe achievement problems is not only defensible, but warranted. Furthermore, we believe that a perspective of mild disabilities as ***subjective*** categories that are based on core social values is a viable alternative perspective to the "true" mild disabilities approach.

Mild Disabilities as Subjective Categories: Differences in Degree, Not Kind

The idea that the mild disabilities are not objective, but are subjective is not a new one. A number of special education researchers (e.g., Deno, 1989; Reynolds, 1984; 1997) have suggested that mild disability categories are "contextually constructed" and values-driven rather than being caused by organic impairments. More than 15 years ago, Squibb (1981) argued this point by stating, "children are often branded and treated as though their characteristics were natural, or of their essence, when, in fact, they are socially posited and socially maintained characteristics" (p. 37). Reynolds (1984) cautioned the field of education that with respect to mild disabilities, the categories lacked "taxonicity;" because they did not carve nature at its natural joints.

Because distinctions regarding ***kind*** of subjective disability cannot be made (Reschly, 1988) it is argued that instead, differences in subjective disability category are a matter of ***degree***. When the differences among disability categories are examined in such a way, the disability categories are no longer viewed as "all-or-nothing" propositions. Rather, they are considered to be like the medical conditions of high blood pressure and obesity in that they occur along a continuum that varies in severity with the discrepancies among the "degrees" being quantitative, not qualitative.

For example, research done by Shaywitz, Escobar, Shaywitz, Fletcher, and Makuch (1992) suggests that even a disability like dyslexia, which has been historically viewed as being a "distinct entity," simply represents the lower end of a ***continuum*** of reading abilities with no distinct cutoff point to separate children with dyslexia from children with typical reading skills. Stanovich (1991) reached a similar conclusion. He emphasized that there is very little empirical evidence to suggest that "qualitative" differences regarding cognitive subskills exist among children who are considered to be dyslexic, "garden-variety" poor readers, or typical readers. Instead, the students differ ***quantitatively*** along the reading skill dimension.

Consequences of Mild Disabilities as Subjective Categories

The differences in prevalence rates and definitions are explained most easily when the three mild disabilities are considered as subjective disabilities. If these mild categories are indeed values-driven and socially constructed, then differences in prevalence rates and identification practices and criteria are ***explained*** easily; the differences reflect different social constructions of the mild disabilities by states and communities. However, one would expect, then, that the socially constructed dimension(s) by which professionals (e.g., school psychologists, special and general educators) entitle students to receive special education would be explicit and those parties involved in the decision-making process would be fully aware that these categories are not objective, but subjective. If the former were true, assessment and identification of disabilities would emphasize the socially valued dimension. If the latter were true, educational practitioners would be discussing mild disabilities from a sociological versus psychological perspective (Shinn, Tindal, Spira, & Marston, 1987). We do not believe ***either*** proposition to reflect current practice.

Understanding the Actuarial Consequences: Slicing the Achievement "Pie"

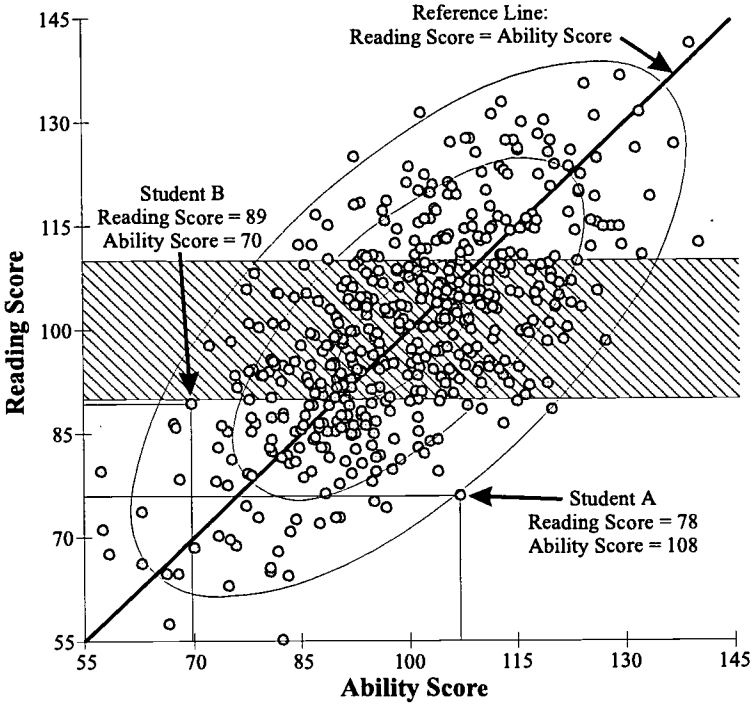
Earlier in this chapter, we proposed that a categorical system for mild disabilities should be based on either sound science or core social values. To date, we lack evidence to suggest that either is true. At a national level, we have failed to discuss our core values in large part because of our professional preoccupation with a "true disability" perspective. We argue that understanding the actuarial consequences of mild disability assessment and identification practices can help us understand the inherent problems and help us specify solutions.

We believe we can explain the results of schools' difficulties in decisions regarding students with severe achievement problems when one considers that all definitions are just different ways of "slicing the pie" or portioning out the joint frequency distribution of students' scores on two broad domains of tests. Special education eligibility decisions for students with severe achievement problems in most cases are based on their performance on two types of tests, (a) an ability or cognitive test(s), and (b) an achievement test(s). This assessment process differs significantly from the assessment and eligibility processes used for students with social/emotional problems. Regardless of the ability or achievement tests selected, the basic relation between the two types of tests is consistent at around .7. See Salvia and Ysseldyke (1995) for more information on this relation.

Key to the use of ability and achievement test scores in differential diagnosis of students with achievement deficits is the presence of a "severe discrepancy." This discrepancy can be of two forms, an ***interindividual*** discrepancy or an ***intraindividual*** discrepancy. The former relies on a difference ***between*** individuals, typically a large difference between the score of an individual and the norm (e.g., mean) of a particular group. In the category of mental retardation, for example, an interindividual discrepancy of more than 2 standard deviations below the mean is a primary, but not only, eligibility criterion. That is, students who score below 70 on an ability measure with a mean of 100 and a standard deviation of 15 may be considered eligible under the category of mental retardation.

In contrast, an ***intraindividual*** discrepancy is based on ***within-person*** differences. Intraindividual discrepancies are based on an assumption that one's achievement level should match one's ability level. Any significant difference, typically when ability is greater than achievement, is taken as a "sign" of a learning disability. As with mental retardation, the magnitude of the discrepancy required for diagnosis varies from state to state. In addition, the strategy by which

Figure 1. Hypothetical joint frequency distribution of students' reading scores and ability scores with a correlation of .67 between the two tests.



this discrepancy is calculated varies by state (Mercer, Jordan, Allsopp, & Mercer, 1996).

The actuarial relation between ability and achievement is displayed in Figure 1, which represents the joint frequency distribution of a typical correlation of about .7 between the two measures. This figure is adapted from one used by Good and Jefferson (1998) that they derived to represent the typical relation between scores on a reading achievement test and an ability test.

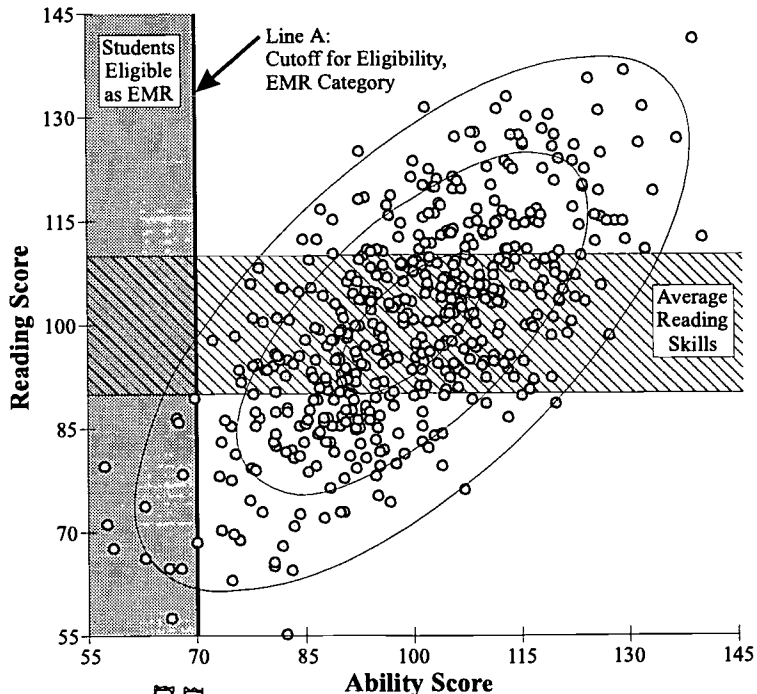
On the ordinate are approximately 500 students' reading scores on a test with a mean of 100 and standard deviation of 15. On the abscissa are the same students' scores on an ability test, also with a mean of 100 and standard deviation of 15. Each point represents a student's scores on the two tests. For example, Student A scored about 108 on the ability test and about 78 on the reading test. In contrast, Student B scored about 70 on the ability test and about 87 on the reading test. The points represent example student scores, the ellipses represent areas of relative likelihood. Score combinations in the center ellipse are most likely while score combinations outside the outer ellipse are least likely (although still possible). The solid black reference line represents those students whose reading score is ***equal to*** their ability score.

Mental Retardation

Despite a lot of rhetoric and good intentions about adaptive behavior, mental retardation is still characterized by very low scores on ability measures (Reschly, 1982; Reschly, 1987; Reschly & Grimes, 1990). The current identification practices can be illustrated by examining Figure 2.

Depending on the specific ability criterion for diagnosis, a certain predictable ***proportion*** of students would be expected to be identified as mentally retarded given their scores on the ability test and the magnitude of the interindividual discrepancy from the typical expected ability score of 100. The students who would be potentially eligible as mentally retarded using a 2-standard deviation criterion (i.e., ability scores less than 70) are shown in the shaded area. Adjusting Line A right or left on the abscissa would result in different students being identified. Actuarially speaking, Line A ***is*** adjusted by different state

Figure 2. Students eligible as EMR using ability score below 70 criterion (2% of students potentially eligible).



criteria. In fact, Line A was adjusted down to 70 from 85 by the then American Association for Mental Deficiency (now American Association for Mental Retardation, AAMR) in 1973. More recently, AAMR adjusted Line A to the right by raising the criteria for eligibility to 75 (MacMillan, Siperstein, & Gresham, 1996).

Two observations from Figure 2 are noteworthy. First, nearly all the students in the shaded area are poor readers. The range of average readers (i.e., those readers with standard scores between 90 and 110 or percentile ranks between 25 and 75) also is shown on Figure 2 with crosshatched lines. Students with ability scores below 70 generally performed below the average range, with all but one reading standard score below 90. Indeed, average reading performance would be relatively unlikely.

Second, the achievement scores of the students with ability scores below 70 (i.e., those students in the shaded area) are generally higher than their ability scores, with one reading score in the average range and 5 of the 11 scores between 70 and 90. The pattern of higher reading scores than ability scores has two implications. A first implication is that the widely held belief that "ability," as measured by ability tests, sets an upper limit on achievement has no empirical basis. Similar patterns of performance have been documented by other researchers (e.g., Shaywitz, Escobar, Shaywitz, Fletcher, & Makuch, 1992). For example, Share, McGee, and Silva (1989) examined the relation between IQ and the reading skills and reading progress of 741 children. At age 13, 34% of low IQ children (IQs from 70 - 80) were reading at a level comparable to other children the same age. From a scientific perspective, higher reading scores than ability scores are expected for children with low ability due to regression toward the mean. The problems of regression and identification of students with disabilities will be discussed briefly later in the chapter (for a detailed discussion, see C. Reynolds, 1984-85; Salvia & Good, 1982).

A second implication of the pattern of higher reading scores than ability scores is that ***not all*** children with ability scores below 70 need special education services, at least in reading. It is the ***combination*** of extreme low achievement (i.e., educational need) and low ability scores that is likely to result in identification as mentally retarded and the provision of special education services. Although the student might display educational need in other areas, like math, it is the children whose reading scores are in the lower-left box who are most appropriately identified as eligible for special education in the mental retardation category. For these children, there is little argument or controversy regarding the appropriateness of special education services - educational need is clear and disability diagnosis, although regretted, is seldom argued.

Learning Disabilities

As discussed earlier, most students in special education and in the mild disabilities categories are identified with learning disabilities. Although there is alarming variability in definitions of learning disabilities, four commonalties emerge: (a) educational need, (b) severe discrepancy between ability and achievement, (c) exclusion of other causes of learning problems, and (d) processing deficits. Because of the difficulties assessing processing deficits in a reliable and valid manner (Salvia & Ysseldyke, 1995), the fourth component is frequently discounted. When determining a severe discrepancy between ability and achievement, the joint frequency distribution of ability and achievement test scores is sliced "diagonally." That is, eligibility criteria frequently specify the bottom right corner of the joint frequency distribution instead of a vertical slice as found in eligibility criteria for the mental retardation category.

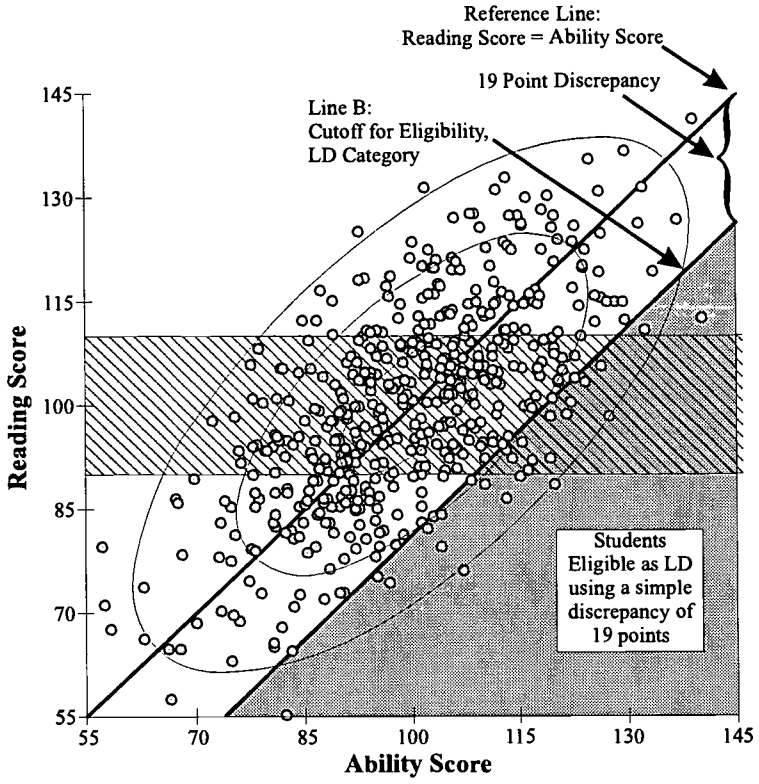
Most often, the criterion for identification is based on a ***simple*** discrepancy (Mercer, King-Sears, Mercer, 1990; Ross, 1995). With a simple discrepancy, the achievement score is subtracted from the ability score. The resulting value represents the discrepancy. The specific magnitude of the discrepancy that results in learning disabilities identification (e.g., 19 point discrepancy) can be represented as a diagonal line on the joint frequency distribution of the two tests as shown in Figure 3.

With a simple discrepancy criterion, the diagonal line is drawn ***parallel*** to the reference line (the line where the achievement score is the same as the ability score) with the "distance" below the reference line based on the specific discrepancy established by the specific state (or district, or individual practitioner).

From an actuarial perspective, a predictable proportion of students is identified as potentially eligible as learning disabled using this procedure. In Figure 3, Line B represents a simple discrepancy model (i.e., the achievement score is subtracted from the ability score) that would identify 6% of the school-age population as learning disabled. This proportion of students results from a simple discrepancy of about 19 points. The data points that fall in the shaded range are those students who would be identified as LD using this simple discrepancy criterion.

Different states who use a simple discrepancy are, in actuality, "adjusting" Line B up or down depending on their specific criterion. For example, Ohio requires a simple dis-

Figure 3. Students eligible as LD using a 19 point Simple Discrepancy criterion (6% of students potentially eligible).



The second noteworthy observation is that many of the students in the shaded area earn ***average or above average*** reading scores. For students whose reading scores are average or above, it is difficult to make a case for "educational need" at least in the reading area. Indeed, a criteria for "adequate progress" in establishing the least restrictive environment that has been supported by the judicial system is passing grades (Rowley vs. Board of Education, 1982). When considering ***both*** educational need and a severe ability-achievement discrepancy, only the children in the lower right area of Figure 3 would appropriately be identified as learning disabled.

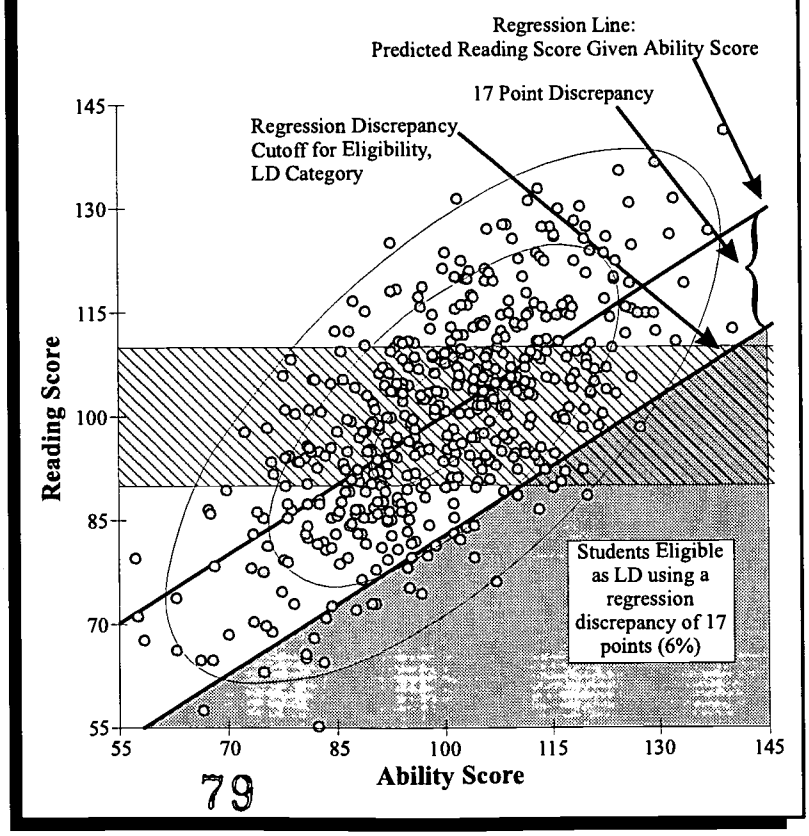
The third observation is that many children with ***extreme*** low reading scores (including students whose reading achievement scores fall below 70) who most educators would agree display serious educational needs would ***not*** be identified as LD with the simple discrepancy model.

crepancy of 1.5 standard deviations, or about 22 points. This criterion would identify about 4% of students as LD. California requires a simple discrepancy of "1.5 standard deviations of the distribution of computed differences." After all the math is worked out, this corresponds to a difference between ability and achievement scores of about 14 points, or about 13% of children. A discrepancy of 19 points was selected as a middle value for illustrative purposes for this chapter.

Three observations from Figure 3 are noteworthy. First, it should be noted that with a simple discrepancy, the proportion of students with a severe discrepancy varies as a function of the ability score. Greater proportions of students with higher ability scores have a severe simple discrepancy than students with lower ability scores. At the point of the joint frequency distribution where students earn ability scores of around 130, about 20 times more students would be identified as learning disabled than students with scores around 80 (Good, in progress). Again, from a scientific perspective, this phenomenon is accounted for by regression and ***not from any in-***

t attributes of the students themselves.

Figure 4. Students eligible as LD using a 17 point Regression Discrepancy criterion (6% of students potentially eligible).

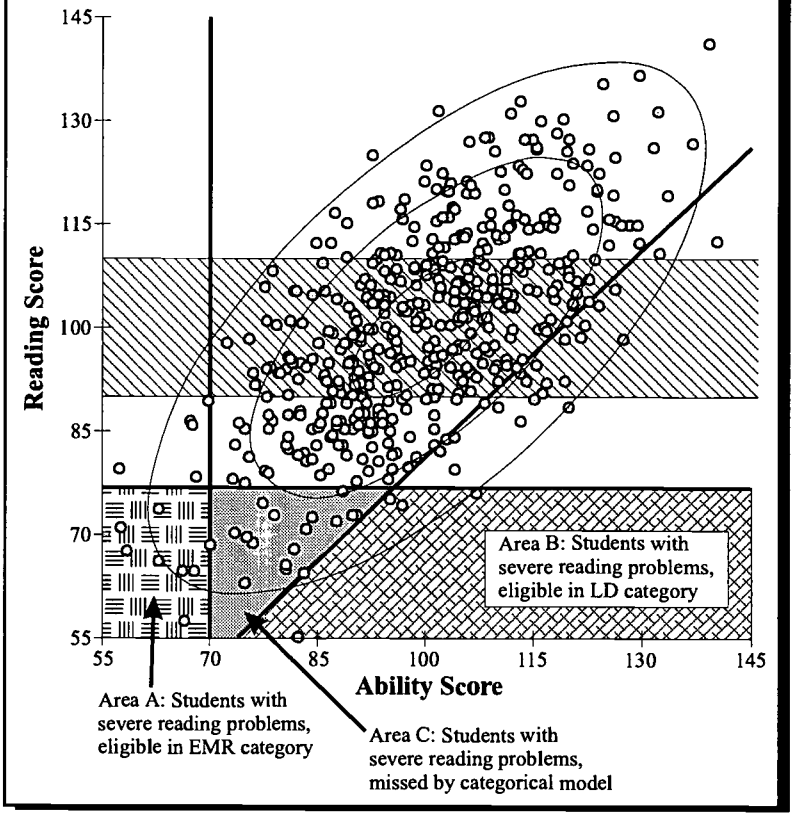


Correcting for Disproportional Learning Disabilities

To address the problem of a greater proportion of students with higher ability scores displaying a severe simple discrepancy than students with lower ability scores, some states use a ***regression procedure*** to evaluate an ability-achievement discrepancy. For example, Utah uses a regression discrepancy approach to identify a severe ability-achievement discrepancy for learning disabilities identification (Ross, 1995). Similar to simple discrepancy approaches, the specific magnitude of the regression discrepancy depends on the criterion established by the specific state (or district, or practitioner).

The primary advantage of regression discrepancy criteria is that they all share in common the identification of an ***equal proportion*** of students as having a severe ability-achievement discrepancy, regardless of their ability score. However, the use of a regression discrepancy is just another way of slicing the pie, actuarially speaking. Depending on the number of students expected to be identified as learning disabled, a particular regression discrepancy criterion is specified. The results of a regression formula predicted to result in 6% of students displaying a severe discrepancy is presented in Figure 4.

Figure 5. Students with severe achievement problems missed by EMR and LD categories.



From examining Figure 4, it is apparent that the problem of identifying different proportions of students ***as a function of their ability score*** is resolved. An equal proportion of students, in this instance 6%, at each ability score level would be identified. Again, however, many students with a severe ability-achievement regression discrepancy would have reading scores in the average range with questionable educational need. Thus, the students in the lower right area again would be appropriately identified as learning disabled using educational need and a severe regression discrepancy. In addition, the problem that many students with extreme low reading scores would not be eligible for special education services as learning disabled is still there.

Categorical "Misfits"

A serious problem inherent in these disability categories based on interindividual discrepancies in ability and intraindividual discrepancies between ability and achievement is that large numbers of students with severe achievement needs "don't fit." The students with severe educational needs who do not fit the categorical model are illustrated in Figure 5. Students in Area A of the joint distribution have severe educational need and are eligible for special education in the mental retardation category. Students in Area B have severe educational need and are eligible for special education in the learning disability category. The children in Area C are among the lowest 6% of all readers but they would ***not*** be identified as disabled and eligible for special education services in a categorical model by the example criteria described thus far. They would not be eligible under the category of mental retardation because their ability scores are too high. They would not be eligible under the category of learning disabilities because their ability scores are too low. As shown in Figure 5, there would be more students with serious reading problems who ***would not be eligible***, given the criteria, than students ***with*** serious reading problems who would be eligible with low ability or a severe ability-achievement discrepancy. Reynolds and Heistad (1997) refer to these students who do not fit the categorical special education system as "students at the margins." Arguably it may be these students who need special education services the most.

Two important implications follow from Figure 5. First, the children under consideration are not just low achievers; they have ***severe*** low achievement. The students have skills so low that they most likely are going to experience serious

trouble in their classroom and their teachers can be expected to experience severe difficulty in meeting their educational needs while still meeting the needs of the rest of their class. Second, for these students at the margins (i.e., children in Area C), low ability is not the limiting factor – many children with comparable ability scores are reading in the average range. Thus, we must look elsewhere for the limiting factors: opportunities to learn, quality and amount of instruction, quality of the curriculum, motivation, or perhaps phonological processing deficits. One thing is clear, these children have sufficient ability to attain reading skills in the average range.

Problems with a Categorical Model of Service Delivery

An actuarial analysis conducted by looking at how the "ability-achievement pie" can help us understand the consequences of special education assessment and service delivery based on distinctions between Areas A, B, and C in Figure 5. Given that students in all three categories have severe educational need (i.e., extreme low achievement), then a system that provides services to two of the categories (Areas A and B) while denying special education services to the third (Area C) needs to be examined carefully. We see five fundamental issues that suggest that current "slicing" procedures require reconceptualization:

1. The distinction between categories is so variable as to be capricious;
2. The distinctions between categories are not educationally meaningful;
3. Many children with severe educational needs would be denied services;
4. Distinguishing categories is an inefficient use of resources; and
5. Categorization requires extensive resources that may be better used for intervention.

Our actuarial analysis has established that using an ability-based interindividual or ability-achievement intraindividual discrepancy results in significant numbers of children with severe achievement deficits being denied special education services (Item 3) unless multidisciplinary teams disregard the eligibility criteria. If we conclude that Items 1 and 2 are supported, then Items 4 and 5 follow.

Capricious Distinctions

As illustrated in the description of determining an ability-achievement discrepancy, there is remarkable variability from state to state in the procedure used. Some states (e.g., California, Ohio) specify a simple discrepancy; some require a regression discrepancy (e.g., Utah); and others take an "agnostic" approach by requiring an ability-achievement discrepancy but not specifying the procedure to be used (e.g., Oregon). When the state department of education does not specify or recommend a discrepancy procedure to be used, individual school districts or practitioners determine their own criterion and procedures for determining an ability-achievement discrepancy. As a result of the differences in criteria and procedures, the "line" (as per the figures used in our examples) distinguishing children with educational needs and an ability-achievement discrepancy from children with educational needs but ***no*** ability-achievement discrepancy depends on the specific state, district, school, and even individual practitioners making the distinction. In other words, the distinctions (or "lines drawn") are so variable as to be capricious. With vague, capricious distinctions, the consequences of investing limited resources in expensive, time-consuming assessment are magnified. It also is no surprise that the data, once obtained, are frequently subverted or not used when children's and educator's needs are so obviously counter to findings.

Meaningless Distinctions

Although the capriciousness of the distinction between disability categories as a function of setting is a serious problem, it might potentially be resolved by standard, established criteria and procedures (assuming the field could ever agree). Even more important than the capriciousness of the distinction is whether, once made, the categorical distinctions are ***educationally meaningful***. Indeed, we argue that the question of whether distinguishing between categories is educationally meaningful is paramount. If the three slices of the pie (Areas A, B, and C in Figure 5) with severe low achievement ***do not differ*** in educationally meaningful ways, then it is inefficient to spend our scarce educational resources in differential diagnosis. We define educationally meaningful, then, as differences in (a) prognosis, (b) rates of progress, (c) response to instruction, and (d) educational need.

Evaluating meaningfulness. To reach a judgment of whether students in Areas A, B, and C differ in educationally meaningful ways, we must examine the scientific evidence and separate it from beliefs. Additionally, we must judge the quality of evidence by ensuring that comparisons are made between and among appropriate student groups. Disability definitions and categories are plagued by a surfeit of theory, belief, and advocacy. However, ***empirical*** evidence of meaningful differences is essential to justify differential diagnosis of children with extreme low achieve-

ment. For example, it frequently is believed that, when compared to children with lower ability scores (Area C), children with higher ability scores (Area B) and the same skills will display a better short-term and long-term prognosis. As we will detail, however, it is the ***evidence*** of differential prognosis that allows us to judge educational meaningfulness, not the ability score itself.

Analysis of the meaningfulness of discrepancies is predicated on making appropriate comparisons of subjects' groups. Many research studies (e.g., LaBuda & DeFries, 1988; Spreen, 1988) have compared children with learning disabilities (i.e., with an ability-achievement discrepancy and with low reading skills) to children without learning disabilities (i.e., without a discrepancy and without low reading skills). However, these studies are not helpful because it is not clear whether the group differences are attributable to the discrepancy **or** to the low reading skills. To contribute to our knowledge of the meaningfulness of differences between children with and without an ability-achievement discrepancy, children with equivalent, severe educational needs should be compared (i.e., the three areas in Figure 5). Empirical evidence that children with ***similar extreme low achievement*** differ in educationally meaningful ways is needed for differential diagnosis to be justified.

Differences in prognosis. A difference in ***prognosis*** refers to evidence that students with an ability-achievement discrepancy (Area B) have poorer (or better) short- or long-term outcomes than children with the ***same*** achievement but without an ability-achievement discrepancy (Area C). First, however, it is important to place discussions of prognosis in context. The prognosis for most if not all students with extreme low achievement (i.e., educational need) is clear and alarming, especially in reading. Adams (1990) summarizes the implications of illiteracy by noting that "illiterate adults account for 75% of the unemployed, one-third of the mothers receiving Aid to Families with Dependent Children, 85% of the juveniles who appear in court, 60% of prison inmates" (p. 27). The question, however, is whether a ***different*** prognosis would be expected for children with and without a severe ability-achievement discrepancy.

An answer to this question is provided in a longitudinal study by McGee, Williams, Share, Anderson, and Silva (1986). They compared the reading and behavioral prognosis of boys with and without an ability-achievement discrepancy from age 7 to 11 years. ***Both*** groups had equivalent low reading skills at age 7. ***Both*** groups experienced long-term decrements in reading ability, and ***both*** groups ...red the study with more behavior problems that got worse. The groups were not appreciably different in prognosis.

Similar conclusions were reached by McCall (1994; 1992) who compared the long-term prognosis of students with and without a severe ability-achievement discrepancy who had the same, low academic skills in school. McCall found the two groups were essentially identical in educational attainment and job status 13 years after high school. The available evidence supports a conclusion that children with extreme low skills, at least in Areas B and C, do not differ systematically in prognosis.

Different rates of progress. A difference in ***academic progress*** refers to evidence that students with an ability-achievement discrepancy will make academic progress at a different rate than students without the discrepancy. A historical belief system holds that ability score predicts the rate of progress a child should display when presented with instruction. This belief translates into the assumption that children in Area C (i.e., extreme low skills without a discrepancy) will progress more slowly when provided with instruction than children in Area B (see, for example, Burt, 1937; Oehler-Stinnett, Stinnett, Wesley, & Anderson, 1988).

No data suggest this assumption is true. Indeed, the available evidence counterindicates this assumption. For example, Share, McGee, McKenzie, Williams, and Silva (1987) examined this assumption empirically. They found that boys with an ability-achievement discrepancy displayed ***equivalent*** progress to boys with the same reading skills who did not have an ability-achievement discrepancy. They concluded, "on the basis of the data discussed here, there appears to be no firm evidence to support the validity of the distinction" (p. 42). Thus, the available evidence is consistent with a conclusion that children with extreme low achievement skills do not differ in rate of progress depending on whether or not they have an ability-achievement discrepancy.

Differential instruction. Differences in the ***type of instruction*** includes evidence that students with an ability-achievement discrepancy respond better to different instructional methods (i.e., an aptitude-by-treatment interaction) than children without the discrepancy. Another popular belief appears to be that specialized instructional techniques or methods have been developed and are necessary for learning disabled children (with an ability-achievement discrepancy), and that ***different*** instructional methods are best for children with the same skills but no ability-achievement discrepancy. Stated somewhat differently, this is the belief in aptitude-by-treatment interactions: That a child aptitude or characteristic can be identified ***before*** instruction that

will accurately predict which instructional method will be most effective. However, decades of research have failed to support the efficacy of aptitude by treatment interactions in general (Kavale & Forness, 1984). Instead, the most accurate statement that can be made to date is that children with low skills will respond best to complete, effective instruction, and that effective instructional techniques and methods are likely to be effective, regardless of the specific aptitudes or characteristics of the learner. For example, Simmons et al. (Simmons, Fuchs, Fuchs, Pate, & Mathes, in press; Simmons et al., 1995) explicitly compared the effect of classwide peer tutoring for children with an ability-achievement discrepancy and for children with the same achievement but without a discrepancy. Both groups responded positively to the intervention, and both groups made similar rates of progress.

Different educational need. Finally, a difference in ***educational need*** refers to evidence that students with a discrepancy are more likely to require resources beyond those available in general education. Differences in educational need between students with a discrepancy and students with the same skills but no discrepancy would be educationally meaningful. Although differences in ability scores are found as a result of the way the groups are defined, "the pattern of their academic deficits is remarkably similar" (Ellis & Large, 1987; Jorm, Share, Maclean, & Matthews, 1986, p. 53; see also Silva, McGee, & Williams, 1985). "Specifically, children with reading disability who have high IQ scores (discrepant poor readers) do not differ from children with reading disability who have lower intellectual aptitudes (nondiscrepant poor readers) on measures assessing decoding and word recognition skills, phonological skills, genetic characteristics, or neurological characteristics. Simply put, reading disability involving deficits in reading single words is not correlated in any way with IQ discrepancy" (Lyon & Chabra, 1996; see also Stanovich & Siegel, 1994)

Summary. Upon consideration of the joint distribution of ability scores and achievement scores (Figure 5), the finding that ability scores do not accurately predict different prognosis or progress for children in Areas B and C should not be surprising. Essentially, for children whose reading score is not accurately predicted by their ability score (Area B), ability score does not accurately predict reading. The children in Area B of Figure 5 represent errors of prediction – their ability score does not accurately predict their reading performance or progress. From a scientific perspective, then, a categorical model of special education service delivery based on a differential diagnosis of a specific type of extreme low achievement (e.g., Area A, B, or C) is untenable. Instead of a clear line of demarcation between Areas B and C as illustrated in Figure 5, the distinction is capricious and meaningless.

The distinction is capricious because of the lack of professional agreement regarding (a) the method used to operationalize the ability-achievement discrepancy (i.e., simple, regression, developmental, need-based, (Good, 1998) and (b) the specific discrepancy cutoff to employ (i.e., 14, 19, or 22 points below; the most severe 3%, 6%, 10%; or other cutoff). In addition, even if professionals could agree on a method and a cutoff, the distinction is still capricious due to the lack of discrepancy agreement from one pair of ability and achievement measures to different pair (e.g., Macmann, Barnett, Lombard, Belton-Kocher, & Sharpe, 1989).

Once a categorical distinction is made on the basis of a specific, arbitrary choice of procedure, discrepancy cutoff, and pair of measures, the fundamental problem remains that there is currently no evidence that ***the distinction is meaningful***. No practitioner knowingly wants to deny services to some children with severe educational needs and provide services to others on the basis of a capricious and meaningless distinction. If that were the case, we could flip a coin more easily and efficiently.

Our discussion to this point has perhaps implied a certain clarity to cutoffs and categories. In practice, the distinctions may be so fuzzy as to be moot. Practitioners often go to great efforts to get students eligible using a number of "tricks of the trade," including using unreliable tests, additional testing, and searching for discrepancies between subtests between and within tests. Because of the inherent unreliability of all tests and variations in the construct being assessed, if enough different tests or subtests are administered, virtually everyone will display a significant ability-achievement discrepancy. When the child's teacher, school psychologist, and multidisciplinary team are convinced that special education services are indicated, repeated measurement will, sooner or later, "reveal" a severe discrepancy. Alternatively, the multidisciplinary team charged with eligibility decision may override the eligibility criteria and determine a student eligible based on their evidence/ judgment.

IMPROVING SERVICES TO STUDENTS WITH SEVERE ACHIEVEMENT PROBLEMS THROUGH NONCATEGORICAL SPECIAL EDUCATION

We are not alone in suggesting that differential diagnosis of students with severe achievement needs among the

mild disabilities categories doesn't work. Among the ***National Agenda for Achieving Better Results for Children and Youth with Disabilities*** strategic activities was a call for the "end of state and federal reliance on categorical labeling" (p. 20). We believe that this strategic activity may assist in rectifying the major issue of assessment being "overused for labeling and placement purposes," reduce or eliminate barriers to service provision, and may facilitate accomplishment of the other strategic activities. However, accomplishment of this important strategic activity is ***not sufficient*** unless the other strategic activities are included to improve outcomes. In particular, strategic activities are needed to address ***how*** students are identified as eligible for special education, and ***when*** assessment information is collected.

Our premise is that our current assessment methods for special education eligibility when students have severe achievement deficits frequently ***are incongruent*** with the underlying service delivery system. Our assessment approach has evolved into a practice-driven model where "we do it this way because we do it this way." Too often, a paroxysm of assessment occurs where heaps of information exclusively about the student are collected for the principal purpose of eligibility determination. Seldom does this assessment extend beyond eligibility determination to instructionally relevant information about the learning context and conditions that are conducive to student learning.

As we stated earlier, we see noncategorical special education services to students with severe achievement problems as a necessary, ***but not sufficient remedy*** to the difficulties of current special education practice with students with severe achievement difficulties. The primary benefit of a noncategorical model is that it would facilitate a shift in focus and resources from the ***identification of potential disabilities*** (or attempts to do so) to the ***identification of effective intervention programs***. To achieve this benefit, we argue for a noncategorical eligibility model that is ***needs based*** with an ***ecological focus***.

In a needs-based model, special education services are provided to students primarily on the basis of educationally meaningful discrepancies; that is, severe low academic achievement. The ecological focus requires us to be more attentive to contextual variables that may be contributing to the learning problem, such as achievement expectations for successful students, and to pay more attention to the least restrictive environment.

However, improving services to students with severe achievement problems requires more than just a change in eligibility model. Assessment also must be integrated into ongoing instruction to inform educational decisions. We must move away from one-shot, high-stakes testing to formative assessment driven by solutions to the questions educators need to answer. We propose a ***Problem-Solving*** model (Deno, 1989; Shinn, 1989) to accomplish this aim. In particular, we need to focus on evaluating the effectiveness of interventions for individual students (Fuchs & Deno, 1991). Finally, but paramount in importance, we argue for an ***outcomes-driven*** criterion. We must be able to show that the services we provide to students with severe achievement problems are effective and engage in the continuous evaluation and improvement of services to each and every student served.

Educational Needs Driven Model

If an ability-achievement discrepancy is a capricious and meaningless distinction, what distinctions can serve as a stable and meaningful basis for special education service delivery decisions? In the first part of this chapter, we proposed that categories be based on scientific evidence or core social values. We concluded that current practices are neither.

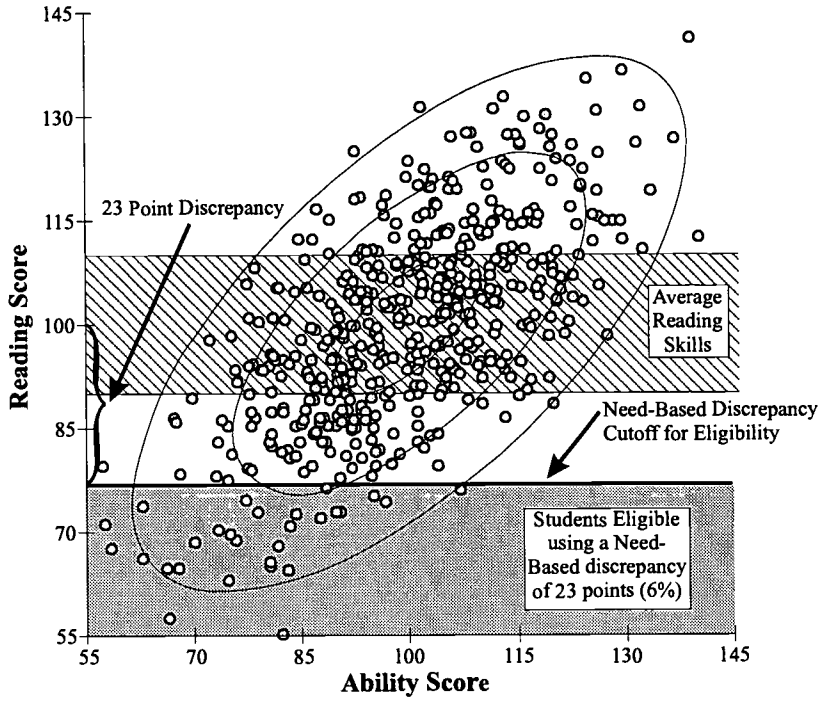
We propose a needs-based, noncategorical model in large part because it is premised on a core social value that ***extreme low academic skill*** and ***the need for intervention beyond the capacity of the general education classroom*** is a defensible foundation for provision of special education services. Without additional resources beyond what the general education classroom can provide, significant numbers of America's children will fail in school. The first component of a educational needs-based model is illustrated in Figure 6. Instead of investing considerable time, energy, and resources in distinguishing among mild disability categories, all students with ***extreme*** low academic skills would be considered potentially eligible. Similar to the categorical models, the cutoff for eligibility could be adjusted up or down, increasing or decreasing the number of students that would be considered potentially eligible. For example, M. Reynolds and Heistad (1997) describe a needs-based approach where students below the 20th percentile (a discrepancy of 13 points) would be eligible for special assistance. In this model, intellectual assessment is not necessary (nor is it prohibited) for eligibility determination. Intellectual assessment can be included when it can be shown to contribute to student outcomes or provide educationally meaningful information, but it would not be necessary for eligibility determination.

Ecological Focus

Our needs-based perspective places an ***equal weight*** on assessing the specific instructional ecology as well as

the student as a component in determining the need for special education. This ecological perspective, we believe, is fully in line with the language and intent of the Individuals with Disabilities Education Act (IDEA), with a special emphasis on the least restrictive environment (LRE) concept and new language regarding role of lack of instruction in determining special education eligibility. The ecological focus has three components, (a), an emphasis on relative or local extreme low achievement, (b) effectiveness of general education instruction, and (c) a need for an educational program that exceeds what can be offered with supplemental aids and services in the general education classroom.

Figure 6. Students potentially eligible for special education services in a noncategorical model using a 23 point Need-based discrepancy criterion (6% of students potentially eligible).



Relative or "Local" Extreme Low Achievement

Extreme low achievement is a core principle of a needs-based approach, but not at an "absolute" level (e.g., extremely low achievement compared to a national achievement norm). A large number of communities in the United States are characterized by extreme low achievement (Kozol, 1991). Pervasive community-wide extreme low achievement is not a special education problem, but a general education problem.

We need to distinguish between a general education need and a ***special education need***. Extreme low skills should be necessary, ***but not sufficient*** for eligibility. Instead, we propose that a significant achievement deficit be ***relative*** extreme low achievement. That is, the achievement deficit is displayed relative to a particular context (i.e., schools or communities). In other words, there is an emphasis on determining an achievement discrepancy based on local achievement standards. This perspective defines a student's disability situationally. For more detail, see Deno (1989). A student may have severe educational needs that warrant additional instructional resources in one setting but not in another. A student might be in the average achievement range in the context of one school, but in the lower extreme in another school's context.

We would expect that extreme low achievement ***relative*** to local school or community standards would be seen initially by some as quite controversial. However, some evidence has suggested that students who are identified as ...ng disabled are the lowest achieving students accord... local normative standards (Shinn, Tindal, & Spira, 1987; Shinn, Tindal, Spira, & Marston, 1987; Shinn, Tindal, & Stein, 1988).

More importantly, defining extreme achievement discrepancies in a local normative context is highly consistent with the least restrict environment (LRE) clause of the Individuals with Disabilities Education Act (IDEA, 1997). This provision states that student are to be educated to the greatest degree possible with their nondisabled peers and that students should be removed from their general education classroom ***only*** when it has been determined that they cannot achieve satisfactorily with supplemental aids and services. The US Supreme Court has defined the general education classroom as the least restrictive environment when students (a) earn passing grades, and (b) progress grade to grade, within the ***local*** community standards (Rowley vs. Board of Education, 1982).

Extreme low achievement in effective instructional environments. The contextual and instructional variables that may be contributing to the low skills also must be considered. New language in the reauthorization of IDEA (1997; Sec. 614, (b) (5)) states that "a child shall not be determined to be a child with a disability if the determinant factor for such a determination is lack of instruction in reading or math. . ." An ecological perspective then requires attention to assessment of the amount and quality of instruction and opportunities to learn. If the student is not

learning because they are not being taught or because instruction is ineffective, the most appropriate and parsimonious solution to the problem is to provide effective instruction. Special education eligibility would be appropriate only when the student has extreme low achievement and s/he is failing to make adequate progress when provided with effective instruction and adequate opportunities to learn.

More resource intensive instruction required. The third component of an ecological perspective is assessment evidence that suggests that ***specialized interventions*** are required to assist a student to receive an appropriate education and progress in general curriculum. Again, we see this feature as consistent with the intent of IDEA that states that the "local education agency shall—use a variety of assessment tools and strategies to gather relevant functional and developmental information. . .that may assist in determining. . .the content of the child's individualized educational program. . ."(Sec. 614,(b) (2) (A)). These specialized interventions may be so resource or time intensive that they could not be implemented in the general education classroom with supplemental aids and services. The types of information must include not only an analysis of the instructional needs of a student with severe low achievement, but also an analysis of the potential instructional resources that could be brought to bear to meet these instructional needs, including, but not limited to, a consideration of special education. Only when it has been demonstrated that general education options have been exhausted and that other more resource intensive instruction is needed should a student be determined eligible for special education.

Use of an Ecological Problem-Solving Model in Decision Making

Assessment is defined as the process of collecting information to make a decision (Salvia & Ysseldyke, 1995). Unfortunately, the term assessment in the special education community is used almost exclusively to mean only ***one*** decision, "testing to determine a student's eligibility for special education." Assessment then remains primarily an undifferentiated process, which we believe results in what we call the "big bang" test-and-place model. See Shinn and Bamonto (1998) for more information.

Quality special education services, we advocate, will be enhanced when assessment practices are decision driven. Good assessment means collecting the appropriate information to make a ***specific*** decision. Failure to know what decision is being made may result in collecting the wrong or inadequate information. Of the assessment and decision-making models that exist (e.g., Salvia & Ysseldyke, 1995), we prefer Deno's Problem-Solving model (1989). Similar to the schema proposed by Salvia and Ysseldyke (1995), the Problem-Solving model is a set of related, but differentiated, ***sequenced*** decisions, In a Problem-Solving model, eligibility (referred to as Problem Certification) is but one of five decisions, Problem Identification, Problem Certification, Exploring Solutions, Evaluating Solutions, and Problem Solution. Arguably, eligibility determination is not the focus of Problem-Solving. In contrast, the specification of effective interventions, determining by assaying and documenting their ***results***, is the defining feature.

We prefer the Problem-Solving model because, in addition to specifying a sequenced set of decisions to be made, it is linked to an ***explicit*** set of assumptions and values. Among the assumptions is the specification of the relation of special education to general education as an important service for those students for whom general education alone has failed to "work." The Problem-Solving model is values-driven; it is ecological and defines "problems" not as residing solely within the student, but in the ***interaction*** between student behavior and situational expectations. For more detail on the specifics of how the Problem-Solving model is used in special education assessment and decision making, see Shinn (1989; 1995).

An Outcomes-Driven Criterion

Above all else, special education must affect significantly those students who receive it. Therefore, special education service delivery must build into its service delivery ***systems*** to document the outcomes it produces. One mechanism for doing so is in the annual goals of the Individualized Educational Program (IEP). Although a core component of legislation for persons with disabilities since 1975, the IEP has been little more than a source for procedural evaluation with little evidence of improvement in quality since inception (Smith, 1991). Quality service provision will emphasize the new language in outcomes evaluation in the reauthorization of IDEA (1997). This new language specifies the focus of the outcomes evaluation as: "a statement of measurable annual goals, including benchmarks or short-term objectives, related to—(I) meeting the child's disability to enable the child to be involved in and progress in the general curriculum;" (IDEA, Sec. 614, (c), (ii), 1997). Furthermore, this new language specifies that students in special education will be evaluated with respect to their progress at least as frequently as students in general education. It is not by chance that this new language emphasizes an outcome with a general education focus and more frequent evaluation of progress beyond annual testing. Quality special education then will emphasize ***ongoing*** assessment of student skills and progress throughout

the general curriculum, with the idea of using the information to show the effects of the services received.

Advantages of Need-Based Ecological Problem-Solving Model

We believe an explicit, core values approach that emphasizes education need has several advantages over the categorical approach. The most immediate advantage is in identification. Collecting evidence of extreme low achievement is more reliable and far less capricious than systems that emphasize estimating an ability-achievement discrepancy (Macmann et al., 1989). There is no disagreement regarding a specific method used to determine the severity of low achievement – low is low. In addition, there is reasonable agreement between reliable and valid measures of academic achievement. When reliable and valid achievement measures disagree, there is a reasonable basis to select the most credible measure: the measure with the closest correspondence to the content of the student's instruction. Finally, a specific cutoff for severity of low achievement (i.e., lowest 6% or 5% or 20%) can be established based on a sociopolitical discussion of values and resources.

A second advantage of severe low achievement as a foundation for special education service delivery decisions is the strong convergence of evidence that the distinction is ***educationally meaningful***. Educationally meaningful discrepancies are characterized by: (a) differences in prognosis, (b) differences in rate of academic progress, (c) differences in type of instruction that is most effective, and (d) differences in educational need. As noted previously, the prognosis for children with severe low academic skills is clear and alarming, especially in reading. In addition, there is converging evidence from longitudinal studies that the rate of progress of children with extreme low skills is below that of their peers (Juel, 1988; Stanovich, 1986).

The type of instruction that is most effective also differs for children with extreme low skills. Children with extreme low skills tend to benefit most from complete, effective instruction whereas children with higher skills can benefit, sometimes even more, from incomplete instruction. Complete instruction includes carefully sequenced and designed instruction that addresses the essential preskills and focuses on big ideas. See Carnine (1995) for more information.

With fewer personnel and time resources necessary for special education identification, we believe it is possible to allocate them instead to the "real business at hand," providing quality interventions to students with severe achievement needs. Only by choosing carefully how best to distribute scarce resources to meet the needs of these children can we meet the real purpose of IDEA and enhance the learning opportunities of children with achievement needs.

Disadvantages of Need-Based Ecological Problem-Solving Model

Clearly the most obvious disadvantage of a noncategorical, needs-based model for students with severe achievement needs will be the changes in assumptions about who we serve and the organization of special education services. It requires us to shift our focus from a "true" disability focus to one where specialized services are provided based on ***core societal values.*** A "true" disabilities focus allows us to emphasize identification instead of outcomes. In fact, we suggest that it preserves the intervention status quo, regardless of intervention (in)effectiveness. It does so by creating a "blame the student" mentality for past learning failures. Blame the victim preserves the intervention status quo like this: "The student didn't learn in general education because she has a disability." Therefore, general education practices need not change because it is the ***student***, not the curriculum or instruction that is at fault. Even more unfortunately, a blame-the-student mentality often is used to explain ***future*** learning [teaching] failures, as when educators adopt the attitude that, "he didn't learn much this year because of his disability and we don't expect him to learn much next year, either." The consequence is that special education interventions for individual students need not change either.

A needs-based service delivery system based on core societal values can also lead to open argument and discussion about who we serve and why. We welcome such discussions and debate, considering it healthy for us as educators. Others may not agree. We suggest that entire professions (e.g., special educators and related services personnel) may not care to engage in that discussion for issues of job security. If one does not spend one's time searching for true disabilities, then what does one do?

SUMMARY

We began with an assumption that ***categorical*** assessment and identification of students with severe low achievement problems may be the biggest removable barrier to improved services to students with severe achievement problems. The first purpose of this chapter was to understand the reasons why categorical assessment and identification for students with severe achievement needs is indefensible. We suggested that if a categorical assessment system is indeed inefficient, expensive, and laborious, then it should be based on ***either*** sound science or core social values. We concluded that it currently was based on neither.

We set out to demonstrate that understanding the actuarial consequences of the specific assessment approaches used also is essential in evaluating both the science and values of the categorical system.

We also described viable alternatives to expedite the assessment and decision-making process of educators when they are confronted with students with severe achievement needs. It is not that we lack alternatives to the prevailing categorical model for mild disabilities. We proposed a noncategorical model based on (a) identification and eligibility decisions predicated on severe educational need in an ecological context, (b) a Problem-Solving model for assessment and decision making, and (c) adoption of intervention services based on outcomes criterion. We believe these alternatives allow educators to create systems that will work for the betterment of the lives of so many students who are currently doing poorly in our schools.

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Noncategorical Approaches to K-12 Emotional and Behavioral Difficulties

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Chapter 5

INTRODUCTION

Students displaying emotional and behavioral difficulties (EBDs) in school settings have a number of pejorative outcomes. These students may ultimately be classified as seriously emotionally disturbed (SED) in the schools under the provisions of the Individuals with Disabilities Education Act (IDEA). Students exhibiting behavioral characteristics of SED experience severe difficulties in peer relationships (Sabornie & Kauffman, 1985; Sabornie, Kauffman, Ellis, Marshall, & Elksnin, 1987-88), externalizing and internalizing behavior patterns (McConaughy & Skiba, 1993), school maladjustment (Hersh & Walker, 1983; Walker, Colvin, & Ramsey, 1995), social skills deficits (Gresham, 1986, 1993), academic deficits (particularly in reading) (Hinshaw, 1992a, 1992b), and self-concept difficulties (Gresham, 1995; Gresham & MacMillan, 1997). Students with these maladaptive behavior patterns and characteristics have long term effects on their adjustment status in later life and in many cases predict adult mental health difficulties (Cowen, Pederson, Babigian, Izzo, & Trost, 1973; Dodge, 1989; Parker & Asher, 1987). A recent comprehensive review by Lynam (1996) strongly suggests that children who show a pattern characterized by hyperactivity, impulsivity, and attention problems coupled with conduct problems (e.g., noncompliance, disruption, aggression) are at high risk for being chronic offenders as adults. According to Lynam (1996) and others (e.g., Patterson, DeBaryshe, & Ramsey, 1989; Reid, 1993; Walker et al., 1995), these children can be identified as early as three years of age.

Students at-risk for and placed in special education under the SED label frequently exhibit a behavior pattern that is least tolerated by teachers, administrators, and schools in general (Forness & Knitzer, 1992; Walker & Severson, 1992). It is estimated that approximately 7% of children and adolescents have behavior problems serious enough to warrant some form of intervention and about one-third to one-half of these would have EBDs serious enough to warrant special education (Forness, Bennett, & Tose, 1983; Forness & Knitzer, 1992). These data would suggest that between 2-3% of these children should be served as SED, however, less than 1% of students are served under this label (see *OSEP 17th Annual Report*, 1995).

Clearly, a relatively large number of students in regular classrooms exhibit behavior patterns requiring some form of intervention. Based on the previously cited 7% figure, approximately 2 students out of a typical classroom of 30 students would need interventions for their EBDs. Few diligent efforts are focused on providing teachers with skills and supports to effectively manage these difficult-to-teach students in regular classrooms. School-based accommodation procedures for students at-risk for SED concentrate on *control* and *containment* rather than on treatment, remediation, and prevention (Walker et al., 1995). Slightly over 19% of students with SED are being served in regular classrooms and about 25% of the SED population is being served in resource room settings (see *OSEP 17th Annual Report*, 1995). Estimates from the Office of Special Education Programs (OSEP) suggest that 50% of these students will drop out of school compared to 32% of those students with learning disabilities, 29% having mental retardation, and 24% of those in the general school population (OSEP, 1995).

In addition, there are relatively large variations in the prevalence rates of SED across the United States. For example, Iowa reported an SED prevalence rate of 1.13% for children ages 6-21 in 1993-94 whereas California reported only a .23% rate (OSEP, 1995). Why would Iowa have almost five times the SED prevalence rate than California? We do not know, but as this chapter will describe, much of the explanation may have to do with the conceptual, empirical, and definitional problems in the categorical classification of children and youth's EBDs.

The Federal SED Definition (Now ED)

The definition of SED contained in IDEA specifies:

> . . . the term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree which adversely affects

school performance: (a) an inability to learn which cannot be explained by intellectual, sensory, or health factors; (b) an inability to build or maintain satisfactory relationships with peers and teachers; (c) inappropriate types of behaviors or feelings under normal circumstances; (d) a general pervasive mood of unhappiness or depression; or (e) a tendency to develop physical symptoms or fears associated with personal or school problems (*Federal Register, 42*, 474, 1977). The definition also includes children who are schizophrenic (autism is now a separate category in IDEA). The definition *excludes* children who are socially maladjusted unless they are also SED.

To qualify as ED, a student must meet one or more of the above five criteria and must meet all three ***limiting criteria*** of severity, duration, and impact on school performance (Forness & Knitzer, 1992). It should be noted, however, that the so-called limiting criteria are nebulous and highly subjective. ***Severity*** derives from the language "to a marked degree," duration is based on the language of "over a long period of time," and impact comes from the language of "adversely affects school performance." By far the most controversial aspect of the Federal ED definition is the ***social maladjustment exclusion clause*** (see Skiba & Grizzle, 1991) which will be discussed later in this section.

Problems with the ED definition. The current ED definition has been criticized by a number of experts within the field of behavioral disorders (Forness & Knitzer, 1992; Kauffman et al., 1991; McConaughy & Ritter, 1995; Skiba & Grizzle, 1991, 1992) and by various professional organizations concerned with students having EBDs (Council for Children with Behavioral Disorders, 1989; National Association of School Psychologists, 1993; National Special Education and Mental Health Coalition, Forness, 1988). Although there are numerous valid criticisms of the current SED definition, four serious drawbacks of the definition are most salient.

One, the five eligibility criteria and the three limiting criteria are not supported by previous or current research in the field of childhood and adolescent psychopathology (see Achenbach & Edelbrock, 1978; Achenbach & McConaughy, 1996; Hinshaw, 1987, 1992; Quay, 1986). Research over the years has identified two fundamental behavior patterns for children with EBDs. The first is an ***externalizing, undercontrolled,*** or ***disturbing behavior pattern*** characterized by response classes of aggression, disruption, impulsivity, hyperactivity, and attention problems. This is by far the most common behavior pattern of children declared eligible and placed into SED classrooms (Skiba & Grizzle, 1992). The second is an ***internalizing, overcontrolled,*** or ***disturbed*** behavior pattern characterized by response classes such as depression, anxiety, and somatic complaints.

The second major criticism of the ED definition concerns the ***social maladjustment*** exclusion clause. Recall that students who are socially maladjusted cannot be deemed ED, unless (in some circular fashion) they are also SED. This convoluted language illogically excludes and includes some portion of children in the same sentence and in seeming direct contradiction to several of the five ED criteria. For example, the criteria of ***an inability to build or maintain satisfactory relationships with peers and teachers*** virtually defines the concept of social maladjustment (Forness & Knitzer, 1992). Additionally, the criteria of ***inappropriate behavior or feelings under normal circumstances*** could also be used to operationalize social maladjustment. Forness (1992) summed up the social maladjustment issue as follows:

> The current definition and its social maladjustment exclusion seems to delay services to children and youth. Much time is spent either trying to prove a child's or youth's difficulties are really social maladjustment or else trying for "force" his or her problems into an identifiable set of symptoms corresponding to one of the five SED criterion areas to override the social maladjustment factor. Valuable time also is wasted, even after an initial prereferral, in a mistaken sense that early signs of behavioral or emotional problems do not really signify a *serious* emotional disturbance (p. 32).

A third criticism of the ED definition is the terminology that the condition "adversely affects educational performance." This terminology seems almost redundant with the language "an inability to learn" found earlier in the definition. Also, ***educational performance*** has been narrowly interpreted by most as referring only to academic performance rather than a broader view that includes social and affective domains of performance. Most children placed in ED programs have an externalizing behavior pattern and experience deficits in academic performance (particularly in reading) (Hinshaw, 1992a, 1992b). However, some children who would otherwise qualify for SED services may not display substantial academic deficits, but rather they may exhibit more difficulties in social and affective domains of functioning.

A final criticism of the ED definition is that it ignores the issue of comorbidity which is well established in the field of childhood and adolescent psychopathology. Comorbidity refers to the co-occurrence of two or more disorders in the same individual. McConaughy and Skiba

(1993) showed that there are moderate to high comorbidity rates of externalizing and internalizing behavior problems. McConaughy, Mattison, and Peterson (1994) reported the comorbidity rates of externalizing and internalizing behavior problems was 53% using teacher ratings and 55% using parent ratings on a sample of 366 children (6-16 years) who were recommended for special education under the ED category. This has direct implications for the wisdom of invoking the ***social maladjustment*** exclusion clause because it is clear that children and youth having internalizing problems (e.g., anxiety, depression) also have rather high rates of externalizing problems (e.g., conduct problems, oppositional defiant behaviors) and vice-versa. Moreover, 60-80% of children being served in the ED category display behavior patterns that could be described as conduct or behavioral disorders (McGinnis & Forness, 1988; Skiba & Grizzle, 1992).

An Alternative Definition

In light of the vagaries and conceptual problems with the current Federal ED definition, an alternative definition drafted by the Council for Children with Behavioral Disorders (CCBD, 1989) has been proposed. This definition is as follows:

> The term emotional and behavioral disorder means a disability characterized by behavioral or emotional responses in school so different from appropriate age, cultural, or ethnic norms that they adversely affect educational performance. Educational performance includes academic, social, vocational, and personal skills. Such a disability is more than a temporary, expected response to stressful events in the environment;
>
> is consistently exhibited in two different settings, at least one of which is school-related; and
>
> is unresponsive to direct intervention in general education or the child's condition;
>
> is such that general education interventions would be insufficient.
>
> Emotional and behavioral disorders can co-exist with other disabilities. This category may include children or youth with schizophrenic disorders, affective disorders, anxiety disorders, or other sustained disorders of conduct or adjustment when they adversely affect educational performance in accordance with section (I).

This definition answers many of the criticisms of the current ED definition. One, it broadens ***educational performance*** to include not only academic performance, but also social, vocational, and personal skills. Two, it acknowledges the situation specificity of behavior by requiring that behavior problems be exhibited in two or more settings. Three, it utilizes a resistance to intervention concept to define an EBD. Four, it accounts for the comorbidity of behavior. Five, it eliminates the social maladjustment exclusion clause. Although this revised definition is a substantial improvement over the current ED definition, it falls short in guiding practitioners in their efforts to qualify children and youth with emotional and/or behavioral problems as being eligible for special education services.

CATEGORICAL CLASSIFICATION SYSTEMS FOR EBDs

Diagnostic and Statistical Manual-IV

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994) is the most frequently used diagnostic system for childhood and adolescent psychopathology. The DSM has undergone four revisions since first appearing in 1952. The DSM-IV is a ***multiaxial*** classification system in which each individual is rated or classified on five dimensions or axes. Axis I includes all Clinical Disorders and other conditions that may be a focus of clinical attention ***except*** Mental Retardation. Axis II includes Personality Disorders and Mental Retardation. Axis III includes General Medical Conditions that may be relevant for understanding a person's mental disorder. Axis IV is used for reporting Psychosocial and Environmental Problems that could influence the diagnosis, treatment, and prognosis of mental disorders. Axis V is for the clinician to judge an individual's Global Assessment of Functioning at the time of diagnosis or evaluation.

The categories that would be of most interest for children and youth are included under the superordinate category of ***Disorders Usually First Diagnosed at Infancy, Childhood, or Adolescence.*** Mental Retardation and Learning Disorders (e.g., Reading Disorder, Mathematics Disorder, Disorder of Written Expression) are not discussed here but the concepts for assessment and intervention can be found in other parts of this document (see chapters by Shinn and Ysseldyke & Marston). The categories having the most relevance for this chapter can be conceptualized as ***externalizing behavior problems*** (e.g., Conduct Disorder, Oppositional Defiant Disorder, Attention-Deficit-Hyperactivity Disorder) and ***internalizing behavior problems*** (e.g., Depressive Disorders, Anxiety Disorders).

In spite of the overwhelming popularity of the DSM-IV by clinical psychologists and psychiatrists, there is little evidence that it has value or relevance for providing services and producing important outcomes for students in school settings. For a more detailed description and critique of the DSM-IV, interested readers are encouraged to

consult the special issues of the *Journal of Consulting and Clinical Psychology* (Vol. 64, No. 6, 1996) and the *School Psychology Review* (Vol. 25, No. 3, 1996). The following section provides a brief critique of the problems with using the DSM-IV logic in school settings for children having EBDs.

Conceptual and Practical Problems with the DSM-IV

An in-depth critique of the difficulties of using the DSM-IV in school settings is far beyond the scope and purpose of this document. Readers, however, should be aware of several issues involved in how the DSM system conceptualizes human behavior and the reliability and validity of doing so for school-age children and youth. Although there are many difficulties with the DSM, the following sections briefly describe five problems with the DSM-IV as they relate to the classification, intervention, and placement of children with EBDs.

Medical model conception of behavior. The underlying basis of the DSM-IV rests on a weakly stated medical model conception of behavior (Follette & Houts, 1996). This is not unexpected given that the over 80% of the Workgroup on Disorders First Diagnosed During Infancy, Childhood, or Adolescence were physicians (APA, 1994). The background, training, and orientation of drafters of the DSM-IV is that of physical medicine and, as such, reflect this medical model conceptualization. Blashfield (1984) summed up the medical model bias in the DSM as follows:

> From the perspective of the medical model, all mental disorders are ***diseases***. The persons afflicted with these diseases are called ***patients***; they need treatment from ***doctors***; ***diagnosis*** is an essential first step if one is to prescribe the best ***therapy*** and to predict the natural ***course*** of the patient's disorder. Severely disturbed patients need ***medication*** and perhaps ***hospitalization***; their care should be paid by ***health insurance policies*** (p. 26).

Although based on this medical model conceptualization of behavior, the DSM-IV makes a relatively strong point that the system is "atheoretical" and "descriptive" because the causes (etiologies) of most mental disorders are unknown. However, use of terminology such as ***signs, symptoms, syndromes,*** and ***diseases*** clearly connotes a disease model for human behavior. In fact, the DSM-IV (APA, 1994) defines a "mental disorder" as ". . . a clinically significant behavioral or psychological ***syndrome*** or pattern that occurs ***in an individual*** and that is associated with present distress (e.g., a ***painful symptom***) or disabil- ."(p. xxi, emphases added).

lthough the medical model is extremely useful in physical medicine, it is unsatisfactory in its application to emotional and behavioral problems for two major reasons. One, there is far from convincing evidence that behavior problems can be adequately explained by the medical model (see Carson, 1996; Follette & Houts, 1996). Two, even if the medical model constituted a valid model for conceptualizing and explaining behavior, there is little relationship between the diagnostic classification and intervention. This will be discussed further in the section on treatment validity.

Structural/descriptive nature. The DSM-IV, as well as its predecessors, represents a ***structural*** or ***descriptive*** account of behavior. In other words, the DSM-IV provides a topographical rather than a ***functional*** description of behavior. The emphasis in the DSM-IV system is on the "What?" (topography) rather than the "What for?" (function) of behavior (Scotti, Morris, McNeil, & Hawkins, 1996). Haynes and O'Brien (1990) described the DSM-III-R as follows:

> The DSM-III-R is a taxonomy of behavior disorders adhering to a structuralist approach. Symptoms are generally clustered according to topographical covariation, which is taken as evidence that some common unmeasured "underlying" variable is operational. In contrast, a functional approach focuses on the covariation between topography and the putative controlling variables. Topographical covariation, per se, is considered meaningful only to the extent that it assists with identification of these controlling variables (p. 560).

What is wrong with a structural or descriptive account of behavior? Nothing, except it bears no relationship to important, identifiable, and controllable environmental events surrounding descriptive accounts of behavior. For example, a diagnosis of Conduct Disorder requires the presence of 3 or more of 15 "symptoms" (behaviors) such as bullies others, initiates physical fights, lying, truancy, stealing, and so forth. To be sure, this behavior pattern would be problematic for society, however, the mere description of these behaviors in a given individual does not address the *function* that each of these behaviors might serve. Some behaviors in this description might serve a social attention function, others an avoidance function, and still others might serve multiple functions such as social attention in one situation and avoidance in other situations.

Additionally, the DSM-IV adheres to a *polythetic approach* to classification in which all "symptoms" need not be present for a diagnosis of any disorder. For example, a diagnosis of Oppositional Defiant Disorder requires 4 of 8 "symptoms" that must have been present for six months. One child might receive this diagnosis if he/she loses tem-

per, is spiteful, annoys people, and is angry/resentful. Another child might receive this same diagnosis if he/she argues with adults, is noncompliant, blames others for mistakes, and is easily annoyed by others. Clearly, these two behavioral topographies are different and it is likely that the functions these behaviors serve would vary. The descriptive account of behavior stems from the medical model conception of the DSM-IV in which "symptoms" are indicative of an underlying disorder.

Categorical proliferation. The DSM system since its inception in 1952 has shown a dramatic proliferation of categories of "mental disorders" and the time intervals between successive revisions of the DSM has become shorter. For instance, DSM-I (1952) had slightly over 100 diagnoses or labels, DSM-II (1968) had over 150 diagnoses, DSM-III (1980) had over 250 categories, DSM-III-R (1987) had close to 300 labels, and DSM-IV (1994) has over 350 diagnostic categories. Follette and Houts (1996) argue convincingly that this huge increase in the number of diagnostic categories in the DSM is not paralleled by a dramatic growth in scientific knowledge about psychopathology.

According to the philosopher Hempel (1965), scientific progress in knowledge occurs when more phenomena can be explained by fewer covering "laws." Applying this logic to the DSM system, the increases in diagnostic categories from 1952 to 1994 suggests that scientific progress is not occurring because more and more diagnostic categories are being used to describe behavior. Follette and Houts (1996) clearly elucidate this point as follows:

> The DSM-IV would have to be considered a success with respect to allowing for enhanced description, which is certainly one of the goals of a classification system. However, there is little to point to for examples of success in making more effective our ability to predict or explain what we are trying to classify. More than that, there is no established mechanism by which new information is evaluated to determine whether the DSM-IV approach is working . . . the proliferation of categories is consistent with an assessment that scientific progress is not occurring . . . there is no agreed-upon way to determine how categories are to be evaluated (p. 1126).

Psychometric concerns. Issues of reliability and validity are as important to classification systems as they are to any assessment device in which individuals are assigned scores or to categories based on some measurable criteria. Reliability in the DSM system can be assessed in at least two ways. One, it can refer to the agreement between two or more clinicians on the assignment of the same diagnosis to the same individuals (interrater reliability). Two, it can refer the stability of a given clinicians' diagnosis of the same individual over time (test-retest reliability).

Interrater or cross-clinician consistency in the assignment of diagnostic categories is an essential psychometric criterion of any attempt at classification whether it be psychiatric categories, physical diseases, or classification of animals or plants. If two or more clinicians using the same diagnostic criteria vary in their assignment of diagnoses to the same individual, the classification rendered may be the result of extraneous variables of idiosyncratic judgments of the clinician rather than the actual status of the person being classified (Faust & Ziskin, 1988).

Research using the DSM-III (APA, 1980) showed that diagnosticians frequently disagreed on specific diagnoses and that these diagnoses did not predict outcomes for children on a consistent basis (Eysenck, Wakefield, & Friedman, 1983; Quay, 1979). Using a statistic known as *kappa*, which reflects interobserver agreements corrected for chance agreements, the overall ***kappa*** for Axis I diagnoses was .52 and .55 for Axis II disorders. Achenbach (1982) argued that even these coefficients were inflated because diagnoses were counted as agreeing if they fell within a broad category of agreement. Other studies using the DSM-III show interobserver agreement rates of similar magnitudes (Mattison, Cantwell, Russell, & Will, 1979; Werry Methuen, Fitzpatrick, & Dixon, 1983).

Does the DSM-IV fare any better in terms of interclinician agreement of assignment of specific diagnoses? Lahey et al. (1994) conducted the DSM-IV field trials that assessed the interclinician agreement for Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) on 440 clinic-referred children from 11 sites throughout the United States. Readers should note that the behaviors included in the diagnostic criteria for these two categories are the most frequently noted behaviors of children placed in ED programs (Kauffman et al., 1991). *Kappa* for ODD was .59 which was similar to the DSM-III (.51) and DSM-III-R (.49) for the same category. Interrater agreement for CD was .53 which was similar to the *kappas* for DSM-III (.50) and DSM-III-R (.55). In short, diagnosticians show relatively poor agreement in the assignment of externalizing behavior patterns to children using the DSM-III, DSM-III-R, and DSM-IV.

Do clinicians show stability in their assignments of diagnostic categories of the same individuals over time? Test-retest reliability over two weeks for ODD was .54 compared to DSM-III field trial *kappa* of .68 and DSM-III-R of .40 (Lahey et al., 1994). Test-retest reliability for CD was .63 which was similar to the *kappas* for DSM-III (.64) and DSM-III-R (.59) (Lahey et al., 1994).

Atkins, McKernal, McKay, Talbott, and Arvanitis (1996) summed up the reliability evidence for the DSM-IV as follows:

> . . . the ODD and CD diagnoses evidenced reliability that was similar to, and for ODD sometimes lower than the prior criteria in DSM-III and DSM-III-R. These results indicated that despite extensive refinement of diagnostic criteria, interrater reliability and test-retest reliability were not improved compared to prior criteria and remained moderately low by psychometric standards (p. 277).

Do DSM-IV diagnoses represent valid diagnostic categories for the assignment of individuals to these categories? Diagnostic or classification validity represents the extent to which differences among diagnostic groups are meaningful. For example, there should be meaningful differences in behavior patterns between children diagnoses as having Conduct Disorder and Attention-Deficit-Hyperactivity Disorder (ADHD). "Classification validity" is not unlike the more common term "construct validity" in the sense that diagnoses represent meaningful diagnostic constructs. There should be differences between any two diagnostic groups in terms of prognosis, treatment strategies, and various demographic characteristics (e.g., socioeconomic status, age, gender).

The validity of diagnostic classification systems such as the DSM-IV rests largely on *specificity research design logic*. Specificity research designs involve comparisons among one or more diagnostic control groups with a target disorder group to determine whether some feature, behavior, or other characteristic is specific or unique to the target disorder (Garber & Hollon, 1991). For example, a target disorder group of ADHD children should be expected to show reliable differences in behavior and etiology from diagnostic control groups of ODD and CD children. As such, the validity of a diagnostic category rests on demonstrable features unique and specific to that category.

Specificity research designs rely on what are known as "weak causal models" in which conclusions about causality are drawn from correlational data. Three conditions are necessary, but not sufficient, to draw conclusions from correlational data: (a) temporal antecedence (the feature must precede onset of the disorder), (b) covariation (the feature co-exists with the disorder), and (c) nonspuriousness (other causes can be ruled out). The presence of specificity is necessary, but not ***sufficient*** to "prove" causality.

Garber and Hollon (1991) indicated that specificity logic rests on the tenuous assumption that diagnostic categories being compared in a specificity research study represent truly distinct disorders that are diagnosed without error. This is problematic for the DSM-IV on several grounds. One, we have already seen that the diagnostic categories are far from being diagnosed without error based on interclinician agreement and stability of diagnostic categories over time. Two, there is a large body of evidence documenting the comorbidity of various psychological disorders (McConaughy & Skiba, 1993). Hinshaw's (1987) review of 60 studies published since 1970 showed that between 30%-90% of children classified as having conduct problems/aggression could also be classified as having attention-deficit-hyperactivity disorder using either a cut-off score ($T>70$) or cluster analysis. Three, many DSM-IV diagnostic categories show similar behavioral correlates (e.g., social skills deficits, academic underachievement, peer rejection). Hinshaw (1992a), for example, showed that one of the most consistent correlates of externalizing behavior problems (e.g., Conduct Disorder, Oppositional Defiant Disorder, and Attention-Deficit-Hyperactivity Disorder) was academic underachievement in reading. This suggests a large overlap between externalizing behavior problems and specific learning disabilities in reading calling into question the wisdom of trying to distinguish among these diagnostic categories.

Absence of treatment validity. Treatment validity (sometimes called treatment utility) refers to the relationship between an assessment and treatment outcome (Nelson & Hayes, 1979; Hayes, Nelson, & Jarrett, 1987). An assessment procedure has treatment validity if it leads to effective interventions for problem behaviors. In a sense, the DSM-IV represents a rather comprehensive assessment system in which individuals are assigned to categories based on co-occurrences of behaviors that form certain behavior patterns. The implicit assumption in the DSM-IV is that once a diagnostic label has been assigned, then more appropriate treatments can be planned and implemented based on that diagnosis. Moreover, it is implicitly assumed that a given diagnosis dictates a different treatment than another diagnosis.

There is little evidence that the DSM-IV or its predecessors lead to more effective treatments or facilitates treatment planning. To have treatment validity, the DSM-IV would have to demonstrate that a particular diagnosis enhances or contributes in some way in selecting, designing, and implementing a treatment for a particular psychological disorder.

For example, the diagnosis of ADHD is based, in part, on behaviors of inattention, impulsivity, and hyperactivity. The diagnosis of ODD is based, in part, on behaviors of arguing, temper outbursts, and noncompliance. The diagnosis of CD is based, in part, on the behaviors of fighting,

stealing, lying, and truancy. To be of use in treatment planning (i.e., to have treatment validity) these diagnoses should dictate different treatments. In fact, the treatment for all three diagnoses may be ***identical*** based on a functional analysis of behavior. A wealth of data supports the use of the same treatments for each of the behavior patterns subsumed under these three diagnostic labels (Walker et al., 1995; Watson & Gresham, in press; Witt, Elliott, & Gresham, 1988; Wolery, Bailey, & Sugai, 1988).

Conversely, given three children with an identical DSM-IV diagnosis (e.g., ADHD), there may be three completely different and effective treatments for each child. One child may respond favorably to drug treatment, another to differential reinforcement, and the third to response cost. The fact that all three children received the same diagnosis adds little if any useful information for planning, selecting, and implementing treatments.

Treatment validity is the key concept linking assessment to intervention. Treatment validity is one reason, among many, for the increasing adoption of curriculum-based assessment, behavioral assessment, and functional analysis of behavior. Given the structural, descriptive nature of the DSM-IV and an absence of a functional approach to assessment, the DSM-IV will have great difficulty in demonstrating treatment validity.

Empirical Classification Systems

Whereas clinically derived classification systems such as the DSM rely primarily on clinical judgment of professionals, empirically derived systems utilize more objective (empirical) statistical approaches for identifying patterns and clusters of behavior. These empirical classification systems have been based primarily on factor analyses of teacher and parent behavior rating scales or checklists. Not surprisingly, different ratings scales and different raters have produced varying numbers and types of behavioral dimensions. These findings are due, in part, to the nature of the samples on which the factor analyses were based, the item content of different rating scales, and the specific types of factor analyses conducted.

Behavior disorders defined using empirical classification systems are defined on the basis of groups of behaviors being statistically associated or correlated with one another. These statistical associations are derived primarily through factor analyses. The factors derived from such analyses are given names not unlike many of the diagnoses using in DSM-IV. Achenbach and McConaughy (1996a) specified several differences between empirical and the DSM classification systems. As opposed to the DSM approach, the empirical classification approach: (a) is based on a psychometric model; (b) behaviors are scored quantitatively; (c) syndromes/diagnoses are derived from quantitative data; (d) cutpoints are based on normative data for gender and age and different informants; (e) cross-informant scores and correlations are compared; and (e) item and syndrome scores are displayed on norm reference profiles.

Dimensions of behavior. Achenbach and Edelbrock (1978) stated that the most widely cited "syndromes" of behavior problems were originally obtained from teacher ratings of children in regular public school classrooms. These teacher ratings scales contained varying numbers of behaviors, and teachers rated these behaviors in terms of frequency or simply checked whether the behavior was typical of the child (e.g., yes or no). Different rating scales assign different names to the "syndromes" derived from factor analyses. The following names can be found: Classroom Disturbance, Disrespect-Defiance, Aggressive Behavior, Conduct Disorder, Anxious, Social Withdrawal, Anxiety-Withdrawal, and a host of others.

In spite of a bewildering array of terms used to describe behavior, two major dimensions of behavior can be used as superordinate categories to parsimoniously describe these behavior patterns: ***externalizing*** and ***internalizing*** behavior. An externalizing behavior pattern is characterized by an overt, outer-directed, and undercontrolled mode of responding to the environment. This pattern is marked by behaviors such as: defiance, impulsivity, noncompliance, aggression, disruptiveness, antisocial behavior, and overactivity (Achenbach & McConaughy, 1996b). An internalizing behavior pattern is characterized by a covert, inner-directed, and overcontrolled behavior pattern marked by behaviors such as: social withdrawal, anxiety, depression, obsessive-compulsive behavior, and shyness. Externalizing behavior patterns can be characterized as ***disturbing*** to others and, as such, most frequently result in referral to special education. Internalizing behavior patterns can be thought of as ***disturbed*** and do not result in nearly as many referrals to special education (Walker & Severson, 1992).

It should be noted that externalizing and internalizing behavior patterns display a significant degree of comorbidity. For example, comorbidity rates for externalizing and internalizing behavior patterns are 55% using parent ratings and 53% using teacher ratings (McConaughy & Skiba, 1993). Using more specific categories within externalizing and internalizing behavior patterns, McConaughy and Skiba (1993) showed comorbidity rates of 40% between parent ratings of aggressive behavior and anxious-depressed behavior and 48% between teacher rat-

ings of attention problems and aggressive behavior. In short, externalizing and internalizing behavior patterns and specific categories within and across each superordinate show moderate to high comorbidity rates.

Critique of empirical classification systems. The primary advantage of empirical classification systems is their use of objective criteria in identifying clusters of behaviors that form a class of behaviors that are topographically similar. Also, variables such as the child's age, sex, race, socioeconomic status, and other demographic variables can be used in multivariate statistical analyses to determine how much influence these demographic variables (singly or interactively) have on the nature of problem behavior patterns.

Empirical classification systems have been shown to be reliable and valid systems for classifying childhood and adolescent behavior problems (see Merrell, 1994 for a review). Internal consistency estimates for various subscales of the *Child Behavior Checklist* (CBCL) and the *Teacher Rating Form* (TRF) (Achenbach, 1991a, 1991b) as well as the *Behavioral Assessment System for Children* (BASC; Reynolds & Kamphaus, 1992) are around .90 or higher. Test-retest reliabilities over a week range from .80 to .90 and are in the .70s over four-month intervals. Interrater reliabilities for behavior rating scales are lower than internal consistency and stability estimates, however, this should not be unexpected given the influence of different informants and situations in which behaviors are rated. A meta-analysis of 119 studies by Achenbach, McConaughy, and Howell (1987) found average correlations between pairs of parents of .60, .64 between pairs of teachers, and .54 between pairs of mental health workers. Much lower interrater reliabilities were observed between dissimilar informants such as parents/teachers (r=.27), mental health worker/teacher (r=.24), and parent/mental health worker (r=.24).

Achenbach et al. (1987) interpreted these relatively low correlations between ratings of child behavior problems by different informants as reflecting the ***situation specificity*** of behavior. That is, the frequency and intensity of problem behavior is often determined by situational factors operating in given environments. Lower correlations between different informants reflect the differences due to situations, and these informants are likely to vary in their expectations of and effects on children and youth.

Establishing the validity of empirical classification systems is difficult, primarily because we have relatively few well-validated or reliable diagnostic constructs against which we could validate empirical classification systems. Obviously, we could not use the DSM-IV as a criterion against which to validate an empirical classification system because of the problems discussed earlier with this system. Three approaches have been used to validate empirical classification systems: (a) correlational research using instruments of known reliability and validity; (b) group differentiation; and (c) factorial validity. Using these three validation approaches, empirical classification systems such as those based on the CBCL, TRF, and the BASC have shown substantial validity evidence (see Achenbach & McConaughy, 1996a, 1996b; McConaughy & Ritter, 1995).

A major advantage of empirical classification systems is that scores can be computed for each dimension of problem behavior and compared to a normative sample for classification purposes (e.g., 98th percentile or greater on a given dimension). Unlike the DSM-IV, the scores reflecting dimensions of behavior have known levels of reliability and validity which are specific to specific informants (e.g., parents, teachers, students). The major disadvantage of empirical classification systems is the lack of ***treatment validity***. Knowing that a child scored at the 98th percentile on anxiety or conduct disorder does not yield requisite data for intervention purposes. It does identify, in a general way, target areas for intervention but does not yield information for a ***functional assessment of behavior***.

RATIONALE FOR A NONCATEGORICAL APPROACH TO EBDs

EBDs and Teachability

Behavior patterns of students at-risk for EBDs often are highlighted at school entry and are magnified within the context of general education settings. These students are ranked among the most difficult to teach, primarily because they exhibit a behavior pattern considered to be the least acceptable in general education environments (Braaten, Kauffman, Braaten, Polsgrove, & Nelson, 1988). General education teachers are the primary gatekeepers in determining which students will be referred for evaluation and placement in special education. In fact, general education teachers are participants in 79% of all school referrals (Lloyd, Kauffman, Landrum, & Roe, 1991), however these teachers are much more likely to refer students for academic difficulties rather than emotional and behavioral difficulties.

Students considered to be at-risk for EBDs represent a heterogeneous population with needs that are often difficult to meet within the context of regular education settings. Students who eventually are classified as ED often fail to meet teachers' ***social behavior standards*** and surpass teachers' ***tolerance limits*** for maladaptive behavior.

The standards, expectations, and tolerance levels that teachers maintain for students' social behavior influence teaching behaviors as well as peer interactions in classrooms (Hersh & Walker, 1983). For example, students perceived as brighter or more competent receive more positive teacher attention, are given greater opportunities to respond, are praised more, and receive more verbal cues during teaching interactions than students judged as less competent (Brophy & Good, 1986).

In addition to academic expectations, teachers hold certain expectations, standards, and tolerance levels for students' social behavior in classrooms. Most teachers would consider a behavioral repertoire as representing successful adjustment if it: (a) facilitated academic performance (e.g., listening to the teacher, completing tasks, complying with instructions) and (b) was characterized by the absence of disruptive or unusual behaviors that challenge the teacher's authority and disturb the classroom ecology (e.g., argues, defies the teacher, disrupts others' learning) (Gresham & Reschly, 1988; Hersh & Walker, 1983).

Model Behavioral Profile

Teachers' social behavior standards are based on student behaviors valued by teachers because these behaviors lead to quieter classrooms, more effective teaching, fewer discipline problems, and higher learning rates (Brophy & Good, 1986; Algozzine & Ysseldyke, 1992). These behaviors, often called ***academic survival skills***, include following directions, using free time appropriately, ignoring peer distractions, and appropriately making transitions among school activities. Teachers' tolerance for maladaptive behavior, in contrast, represents the degree to which teachers will accommodate certain inappropriate behaviors in their classrooms. Among the least tolerated behaviors are those that challenge the teacher's authority and control of the classroom (e.g., noncompliance, opposition to classroom rules, disruptive and aggressive behavior) (Algozzine, 1977; Hersh & Walker, 1983). In short, most students referred for and subsequently placed in SED classrooms are considered problematic based on difficulties in their *"**teachability.**"*

*"**Teachability**"* represents a pattern of social behavior that Hersh and Walker (1983) called the ***model behavioral profile*** expected by most teachers. Regular classroom teachers typically evaluate students against a teachability standard of behavior and academic performance reflecting an idealized, behavioral profile and competent academic performances. Students at-risk for EBDs exhibit a behavior pattern that creates a poor "fit" between teachers' expectations for appropriate academic and social behaviors and [illegible]h exceeds their tolerance limits for maladaptive behaviors. In short, there is a discrepancy between teacher expectations and tolerance levels and students' behavior patterns.

Students with the highest probability of being referred are those exhibiting externalizing or undercontrolled behavior patterns rather than internalizing or overcontrolled behavior patterns (Walker, Reavis, Rhode, & Jenson, 1985). Students at-risk for EBDs deviate substantially from this model behavioral profile and their behavior in regular classrooms is likely to either prompt a referral or make attempts at inclusion difficult, if not unsuccessful. It should be noted, however, that students with an internalizing behavior pattern may not create difficulties in terms of deviations from teachers' model behavioral profile, but these students' behavior may be problematic.

Summary

Students at-risk for and placed in special education for SED frequently exhibit a behavior pattern that is least tolerated by teachers, administrators, and schools in general (Forness & Knitzer, 1992; Walker & Severson, 1992). However, students demonstrating an internalizing or overcontrolled behavior pattern may be at-risk for maladaptive outcomes as well. Much of the literature comparing children with externalizing and internalizing behavior patterns, unfortunately, ignores the fact that a substantial percentage of children may exhibit characteristics of both behavior patterns.

Walker and colleagues (see Walker, Irvin, Noell, & Singer, 1992) have presented an extremely useful model of interpersonal social-behavioral competence for school settings. Figure 1 presents the Walker et al. model which describes both adaptive and maladaptive teacher and peer social behavioral domains and outcomes. Note that adaptive teacher-related adjustment behaviors operationalize the model behavioral profile described earlier and results in teacher acceptance and school success. The maladaptive domain is characteristic of behaviors that disrupt the classroom ecology and result in teacher rejection, school failure, and referral to special education.

The social behaviors in the adaptive peer-related adjustment domain are substantially different from those in the teacher-related adjustment domain. These behaviors are essential for the formation of friendships and peer acceptance, but have little to do with classroom success and teacher acceptance. The maladaptive behaviors in this domain are likely to result in peer rejection or neglect, but share many similarities with the maladaptive behaviors in the teacher-related adjustment domain. Students at-risk for EBDs are likely to have difficulties in both teacher-related and peer-related adjustment and maladjustment domains.

Figure 1. Model of Interpersonal Social-Behavioral Competence within School Settings.[1]

TEACHER-RELATED ADJUSTMENT		PEER-RELATED ADJUSTMENT	
Related-Behavioral Correlates		**Related-Behavioral Correlates**	
ADAPTIVE	**MALADAPTIVE**	**ADAPTIVE**	**MALADAPTIVE**
• Complies promptly • Follows rules • Listens • Completes classwork • Follows directions • Cooperates	• Steals • Defies teacher • Tantrums • Disturbs others • Cheats • Swears • Aggressive • Ignores teacher	• Cooperates with peers • Supports peers • Defends self in arguments • Leads peers • Affiliates with peers • Assists peers	• Disrupts group • Acts snobbish • Aggresses indirectly • Starts fights • Short temper • Brags • Gets in trouble with teacher • Seeks help constantly
OUTCOME	OUTCOME	OUTCOME	OUTCOME
• Teacher acceptance • Academic success	• Teacher rejection • Referral to special education • School failure • School dropout • Low performance expectations	• Peer acceptance • Positive peer reactions • Friendships	• Social rejection • Loneliness • Weak social involvement

[1]Adapted from "A Construct Score Approach to the Assessment of Social Competence: Rationale, Technological Considerations, and Anticipated Outcomes" by H. Walker, L. Irvin, J. Noell, and G. Singer (1992) in *Behavior Modification, 16,* 448-474.

RESISTANCE TO INTERVENTION AS A GUIDING PRINCIPLE FOR ELIGIBILITY DETERMINATION

This chapter reviewed a great deal of evidence suggesting that the DSM-IV and empirical classification systems are not particularly useful in making eligibility determinations for students with EBDs. Clearly, a reconceptualization of EBDs is needed to better serve students whose behavior and emotional problems interfere with school and vocational performance. A new approach based on the concept of ***resistance to intervention*** is advocated and described in the following sections. ***Resistance to intervention*** is a principle that states that students can and should be classified as having an EBD if their behavioral excesses, deficits, or situationally inappropriate behaviors continue at unacceptable levels subsequent to intervention (Gresham, 1985, 1991). The resistance to intervention criterion is superior in many ways to the frequent practice of dichotomous thinking that results in a "disturbed/not disturbed" decision. Resistance to intervention is based directly on best practice or prereferral intervention and allows school psychologists and other school personnel to function within an intervention rather than a psychometric framework.

As we have seen, classification systems for childhood and adolescent psychopathology are deficient in a number of ways. Perhaps the most serious indictment of these systems is their lack of ***treatment validity***. Some authors, such as Baer (1985) have questioned the value of classification systems in understanding and changing behavior. In advocating a conceptually conservative view of behavior disorders, Baer (1985) states:

> A behavior-analytic view of behavior understands all behavior in terms of its controlling functions. It categorizes behavior according to what function it serves, and it categorizes functions according to the form of behavior change that they accomplish and the procedures that embody them . . . Nowhere in these classification systems is there a concept of good or bad behavior, healthy or pathological, ordered, or disordered (p. 19).

Baer's (1985) position suggests that so-called "pathological behavior" is not intrinsically abnormal, but rather is adaptive or functional from the perspective of a given

environment in which it occurs; that is, it is following the "laws of learning." All behavior serves a function. For example, self-injurious behavior (SIB) may appear to be extremely pathological and many professionals view it as being caused by biological abnormalities (genetic or neurological). However, when viewed functionally, Durand and Carr (1985) have shown that SIB can serve an ***attention function*** (i.e., the behavior produces social attention in a given environment), an ***escape or avoidance function*** (i.e., the behavior allows an individual to escape or avoid task demands), or a ***self-stimulation function*** (i.e., the behavior produces sensory reinforcement).

Current diagnostic systems for childhood psychopathology represent structural or topographical descriptions of behavior that have little or no relevance for intervention. What is needed for intervention is a system that views behavior from a ***functional*** perspective. The following section describes the concept of behavioral resistance as the cornerstone for a functional system of viewing students with EBDs.

Resistance to Intervention Defined

Resistance to intervention may be defined as the lack of change in target behaviors as a function of intervention. Given that the goal of all interventions is to produce a discrepancy between baseline and post-intervention levels of performance, the failure to produce such a discrepancy can be taken as partial evidence for a EBD eligibility decision.

Resistance to intervention has received a great deal of attention over the past 10 years in both the experimental analysis of behavior and applied behavior analysis literatures (see Mace, 1996; Nevin, 1988) and has been applied to interventions with children having behavior disorders (Davis & Brady, 1993; Davis, Brady, Williams, & Hamilton, 1992). In an analogy to physics, Nevin (1988) used the term ***behavioral momentum*** to explain a behavior's resistance to change. A moving body possesses both mass and velocity and will maintain constant velocity under constant conditions. The velocity of an object will change only in proportion to an external force and in inverse proportion to its mass.

Behaviorally, the baseline rate of behavior can be considered analogous to initial velocity and an intervention procedure to external force. Mass, in a behavioral sense, represents the strength of a response. Response strength is related directly to resistance of behavior to change as a function of intervention. Behaviors with high response strength (mass) tend to resist changes in momentum (inertia).

As in physics, to change the momentum of high strength viors, there must be proportional increases in strength of intervention (force). Behaviorally, resistance can be quantified as the difference between baseline and post-intervention levels of performance divided by baseline levels of performance: B_0-B_x/B_0, where B_0 represents baseline performance and B_x represents postintervention performance. Thus, behaviors with high baseline rates (intensities, frequencies, durations) will be more resistant to change than lower ones because the mass in the former will be larger.

The goal of all interventions is to facilitate the momentum of desirable behaviors and decrease the momentum of undesirable behaviors. One can conceptualize resistance to intervention as being determined by response strength in relation to an intervention applied to change a behavior. The greater the strength of a behavior, the more resistant it will be to intervention.

Many students with EBDs exhibit inappropriate behaviors that have high momentum and exhibit low frequencies of desirable or appropriate behaviors. In other words, they exhibit inappropriate behaviors having high response strength that are resistant to change as a function of intervention. At the same time, they exhibit low frequencies of appropriate behaviors that are difficult to increase because of inertia (low or nonexistent baseline levels). Obviously, students with EBDs are too complex to demonstrate a single behavior with high momentum can be remediated with single intervention. Best practices suggest that multiple interventions of varying force may be required to change multiple behaviors with variations in momentum. Thus, some interventions are required to reduce behavioral excesses and others to increase or remediate behavioral deficits. Factors related to resistance to intervention are discussed in the following sections.

Factors Related to Resistance to Intervention

There are potentially a host of factors that are related to resistance of behavior to change as a function of intervention. However, the factors that seem most relevant for school-based interventions are: (a) severity of behavior; (b) chronicity of behavior; (c) generalization of behavior change; (d) tolerance of behavior; (e) treatment strength; (f) treatment integrity; and (g) treatment effectiveness. Four of these factors deal with characteristics of ***behavior*** (severity, chronicity, generalization, and tolerance) and three have to do with characteristics of interventions (strength, integrity, and effectiveness). These factors have been identified as related to resistance of behavior to intervention in past research (Gresham, 1989; Gresham & Lopez, 1996; Yeaton & Sechrest, 1981).

Severity of behavior. Behavioral severity can be defined by objective, topographic features such as frequency,

rate, duration, intensity, or behavioral by-products (Johnson & Pennypacker, 1993). Using Nevin's (1988) concept of behavioral momentum, the severity of behavior represents initial velocity (i.e., baseline frequency, rate, duration). Given that a behavior has high baseline velocity, it will be more resistant to change because of the momentum of behavior.

Nevin (1988) has shown that the rate of reinforcement for a behavior during baseline is directly related to its resistance to change. That is, behavior reinforced ***more frequently*** during baseline will be ***more resistant*** to change. Based on research dealing with the treatment of severe behavior disorders, it appears that the success of intervention is inversely related to the severity of behavior. These behaviors may be considered to have high momentum and thus are less affected by intervention than less severe behavioral disturbances. These behaviors tend to be positively reinforced (via social attention or material reinforcers) or negatively reinforced (via escape or avoidance from aversive task demands) prior to intervention because the nature of these behaviors in many cases demands a high rate of reinforcement. The net result is that many of these behaviors continue in spite of interventions designed to reduce them. That is, the force applied to the behavior is insufficient to change its momentum.

Chronicity of behavior. Chronicity of behavior represents an important feature of virtually all classification systems for EBDs. IDEA talks about behavioral characteristics existing ***over a long period of time.*** Many categories in DSM-IV (e.g., Conduct Disorder, Oppositional Defiant Disorder, Generalized Anxiety Disorder, Major Depressive Disorder, and ADHD) specify that these disturbances must be present for at least six months. These classification systems define ***chronicity*** as implying a condition that is constant, continuing, and of long duration.

Another definition of chronic is "habits that ***resist*** all efforts to eradicate them" or "deep-seated" aversion to change (*Webster's New World Dictionary, Second College Edition*, 1974). This use of the term chronicity is directly related to behavioral momentum in that it suggests that if baseline rates or intensities of behavior are high and of long duration, then behavior will be more resistant to intervention.

Federal and state definitions of ED as well as DSM-IV rely on the first use of the term chronic meaning a condition that is constant, continuing, and of long duration in the ***absence*** of intervention. I advocate the second use of the term chronic in defining an EBD. That is, one distinguishing feature of EBD is that it represents a behavior pattern that continues in spite of interventions to change its behavioral momentum. Moreover, according to another use of the term chronic, the recurrence of behavior problems after they have been changed by intervention should be interpreted as a problem in maintenance or time generalization rather than an indication of EBD. Generalization as a factor in behavioral resistance is discussed next.

Generalization of behavior change. Generalization of behavior change is directly related to the phenomenon of behavioral resistance. Given that a behavior is severe (i.e., in terms of frequency, duration, and/or intensity) and chronic (i.e., it has lasted a relatively long period of time and/or has been resistant to intervention), it will tend to show less generalization across different nontraining conditions and will show less maintenance when treatment procedures are withdrawn. In effect, students demonstrating severe behavior over an extended period of time are relatively quick to discriminate training from nontraining conditions, particularly when training conditions are vastly different from nontraining conditions. For example, students exposed to a highly structured point system complete with a response cost component for inappropriate behavioral excesses and a reinforcement component for appropriate behavior will readily discriminate when the program is in effect and when the program is withdrawn. Discrimination being the polar opposite of generalization, behavior will likely deteriorate rapidly to baseline levels when one returns to nontraining conditions (assuming the program was effective in decreasing the momentum of undesirable behaviors).

Students with EBDs often show excellent initial behavior change, particularly with their behavioral excesses, but fail to show generalization of maintenance of these behavior changes. One reason for this may be that exclusive attention often is focused on decreasing the momentum of undesirable behavior to the exclusion of facilitating the momentum of desirable behavior (e.g., prosocial behavior). Perhaps the main reason for the lack of generalization and maintenance it that it is not actively programmed to occur as a component of intervention programs (Stokes & Baer, 1977; Stokes & Osnes, 1989).

Tolerance of behavior. Behavioral tolerance can be defined as the degree to which a behavior disturbs or bothers significant others in an individual's environment and the probability that significant others will take active steps to reduce its occurrence (Algozzine, 1977; Hersh & Walker, 1983). Tolerance is a combination of the effects a behavior has on the ecology and the likelihood that intervention efforts will be undertaken. From the perspective of resistance to intervention, behaviors that are least tolerated by teachers are likely to be resistant to change because of their high

intensity baseline levels coupled with a history of frequent reinforcement. In short, these behaviors will have high momentum and therefore will be resistant to intervention.

The tolerance levels and standards that teachers hold for children's social behavior are powerful mediating variables that influence teaching behavior and peer interactions in classrooms (Hersh & Walker, 1983). Referral to special education, particularly referrals for individuals with EBDs, are largely based on a mismatch between teachers' social behavior standards and tolerance levels for inappropriate behavior (Algozzine, 1977; Hersh & Walker, 1983). A referral for individuals with EBDs might be viewed as a problem in ***person-environment fit*** (i.e., the individual's behavior does not fit or match the teacher's social behavior standards and behavioral tolerance levels).

Treatment strength. Treatment strength refers to the ability of a given treatment to change a behavior in the desired direction. Strong treatments produce greater amounts of behavior change than weak treatments. Treatment strength in the context of behavioral momentum refers to the amount of external force applied to behavior to change its frequency, rate, duration, or intensity. Treatment strength is situationally, behaviorally, and personally specific. Some treatments are strong in some situations but not others. Some treatments are strong for changing some behaviors but not for others. Some treatments are strong for some individuals but not others. In short, strength of treatment is determined by the interactive influences of situational, behavioral, and personal factors.

The current definition of treatment strength concerns the magnitude of change produced by a treatment. A treatment reducing the frequency of aggressive behavior by 75% is a stronger treatment than a treatment producing only a 25% reduction. Treatment strength is not always as clearly quantifiable ***a priori*** in psychological and educational interventions as it is in other fields. For example, three aspirin are usually a stronger treatment for headaches than one aspirin. In contrast, three Smiley Face stickers on a child's paper are not necessarily a stronger treatment than one Smiley Face sticker. The primary difference between specification of treatment strength in medicine and psychology is that the former usually specifies treatment strength ***a priori*** (e.g., dosage of drug) whereas the latter specifies treatment strength ***a posteriori*** (magnitude of behavior change).

Treatment strength is directly related to behavioral momentum because behavior occurring at high baseline levels is less affected by treatment (amount of external force applied to behavior) than that at lower baseline levels. As mentioned earlier, the bottom line definition of treatment strength must be gauged by treatment outcome or degree of behavior change produced by treatment. Discussion of treatment outcome or effectiveness and its quantification is presented later in this section.

Treatment integrity. Treatment integrity refers to the degree to which an intervention plan is implemented as intended (Gresham, 1989, 1997). Treatment integrity is concerned with the *accuracy* and *consistency* with which an intervention is implemented. Treatment integrity is necessary, but not sufficient, for the demonstration of a functional relationship between an intervention plan and behavior change. Some interventions may be implemented with perfect integrity yet have no effect on a target behavior. Other interventions may be functionally related to a target behavior, however this functional relationship may be unknown or weak because of the poor integrity with which the intervention was applied.

Practically speaking, interventions that must be implemented by third parties such as teachers and/or parents are subject to lapses in treatment integrity. When significant behavior changes occur, a consultant may falsely assume that these changes were due to the intervention. However, it may well be the case that the treatment agent changed the intervention in ways unknown to the consultant and these changes were responsible for behavior change.

In contrast, if significant behavior changes do not occur, then the consultant may assume falsely that the lack of change is due to an ineffective or inappropriate intervention. In this case, potentially effective treatments that would change behavior substantially if they were implemented with integrity may be discounted and eliminated from future consideration for similar problems. The cause of weak or nonexistent treatment effects in many cases may be due to the poor integrity of potentially effective treatments (Gresham & Lopez, 1996; Yeaton & Sechrest, 1981).

What does treatment integrity have to do with resistance of behavior to intervention? Behaviors should be more resistant to intervention if treatment plans are implemented with poor integrity because the external force applied to change the momentum of behavior is weakened. Given that this chapter argues for determining a child eligible for special education placement and services subsequent to an ineffective intervention, it is extremely important that interventions are implemented with high integrity. A more complete discussion of treatment integrity and guidelines for its assessment are presented by Gresham (1989, 1997).

Treatment effectiveness. The conceptualization of EBDs presented in this chapter requires that a school-based intervention be implemented with integrity for a referred student ***before*** a classification decision is made. If behav-

ior continues at unacceptable levels (i.e., it is resistant to intervention), then a student might be considered eligible for special education and related services. Decisions concerning the effectiveness of interventions often are not made easily. What criteria should be used to determine whether or not an intervention was effective?

One approach to determining treatment effectiveness is by using principles of ***social validation***. Social validity deals with three fundamental questions faced by those involved in behavior change: (a) What should we change?; (b) How should we change it?; and (c) How will we know it was effective? (Gresham & Lopez, 1996). There are sometimes disagreements among professionals as well as between professionals and consumers on these three fundamental questions. Wolf (1978) defined social validity as the assessment of the ***social significance*** of the goals of an intervention, the ***social acceptability*** of intervention procedures to attain those goals, and the ***social importance*** of the effects produced by the intervention. In short, What should we change? How should we change it? How will we know it was effective?

Treatment effectiveness is concerned with Wolf's (1978) third criterion of social validity: determining the *social importance* of the effects of intervention. The question here is: Does the quantity and quality of behavior change make a difference in the student's school functioning? Are problem behaviors brought into tolerable or acceptable limits by the intervention? Do the changes produced by the intervention represent ***socially important changes***?

Practical approaches to establishing the social importance of intervention effects have been proposed (see Gresham & Lopez, 1996; Kazdin, 1977; Schwartz & Baer, 1991). Three general approaches have been recommended: (a) social comparison, (b) subjective evaluation, and (c) combined social validation procedures. Social comparison involves comparing an individual's behavior after intervention with the behavior of relevant, nonreferred peers. Subjective evaluation involves having treatment consumers (teachers and parents) judge or rate the qualitative aspects of the student's behavior subsequent to intervention. Combined social validation procedures use both social comparisons and subjective evaluations to determine socially important effects.

ELIGIBILITY DETERMINATION FOR EBDs

Based on the foregoing principle of resistance to intervention, there are several questions that should be answered regarding an EBD eligibility determination, One, what are the important dimensions of behavior to be assessed? Two, what principles should guide this process? Three, what assessment procedures should be used? Four, what decision rules should be used? Five, what objective, empirical evidence can be used to make an eligibility determination? Each of these questions will be addressed in the following sections.

Dimensions of Behavior

Although students conceivably can display a number problem behaviors, virtually all behavior can be subsumed under three general categories of descriptive or ***topographical response classes***. Keep in mind that behaviors can have similar topographies yet serve different functions or have different topographies and serve the same function. Assessing the function of behavior will be addressed later in this chapter. The three topographical dimensions of behavior that are of most concern in EBDs are: (a) ***externalizing problems***, (b) ***internalizing problems***, and (c) ***prosocial behavior***.

Externalizing problems. Earlier in this chapter, an ***externalizing*** behavior was described as an undercontrolled, acting-out, and disturbing mode of responding to the environment. This behavior pattern can be characterized by aggressive, noncompliant, disruptive, overactive, and oppositional behaviors (Hinshaw, 1992a; McConaughy & Skiba, 1993). We also know that between two-thirds to three-quarters of students served in SED classrooms demonstrate this externalizing behavior pattern.

The long-term outlook for students displaying an externalizing behavior pattern is not good; particularly for children who are highly aggressive. The best predictor of a long-term persistence of externalizing conduct problems is early onset. This strongly suggests that the best way to ***prevent*** the development of this behavior pattern is early intervention and proactive screening efforts early in children's school careers (Kazdin, 1987; Walker et al., 1995).

Internalizing problems. Recall that an ***internalizing behavior pattern*** was described as an inner-directed, overcontrolled, or "disturbed" mode of responding. This behavior pattern is marked by anxious, depressed, and socially withdrawn behaviors often accompanied by somatic complaints (e.g., stomachaches, headaches). Unlike externalizing behavior patterns, there are relatively few longitudinal data regarding the course of internalizing behavior patterns in children. For example, there is little evidence that depressive behavior in childhood continues into adolescence and adulthood. The longitudinal literature for children's anxious behavior reveals a similar picture.

As mentioned earlier, the majority of children identi-

fied and placed in SED programs have an externalizing behavior pattern. The primary reason for this may be that this behavior pattern is the most disturbing and least tolerated by teachers. Relatively few children are referred and subsequently placed into SED programs exclusively on the basis of an internalizing behavior pattern. This may be because this behavior pattern is more "disturbed' than disturbing, is covert rather than overt, and does not exceed the teacher's tolerance limits for maladaptive behavior. Teachers often do no recognize and refer students exhibiting an internalizing behavior pattern, however it represents a potentially serious problem for many children and youth, particularly when it co-occurs with an externalizing behavior pattern (i.e., *comorbidity*).

Comorbidity. Based on the foregoing review, it is clear that externalizing and internalizing problems describe two different patterns of behavior (undercontrolled and overcontrolled). In spite of these differences, these patterns of behavior can co-occur in many students. The term *comorbidity* is used to describe the co-occurrence of two or more distinct behavior patterns in the same individual. McConaughy (1993) found moderate to high comorbidity rates between conduct problems and three other domains studied in a general child population. Twenty-one percent of children having conduct problems also had a diagnosis of affective disorders (depression or dysthymia) and 48 percent of children having affective disorders also had conduct disorders. Comorbidity rates between ADHD and conduct disorder range between 31 percent and 50 percent. Between 25 percent and 27 percent of children having conduct problems also have anxiety problems. These data suggest that a number of children having conduct problems also are at risk for problems in depressive behavior, anxious behavior, and attention deficits (McConaughy, 1993).

The fact that a substantial number of students are comorbid for externalizing and internalizing behavior problems impacts special education eligibility as well as the design of interventions. In terms of eligibility, it seems inappropriate to exclude students from SED on the basis of externalizing problems (e.g., conduct problems) in light of the relatively high comorbidity rates of externalizing and internalizing behavior patterns (Forness & Knitzer, 1992; McConaughy & Skiba, 1993). Comorbidity also has substantial implications for the design and implementation of prereferral interventions. Students at-risk for both externalizing and internalizing behavior problems require broadly conceived, multifaceted interventions that involve school, home, and community settings. These interventions should focus on the facilitation of social competence, the [illegible]tion or elimination of interfering problem behaviors (externalizing and internalizing), and the facilitation of academic competence.

Prosocial behavior. The skill and fluency with which students navigate the often difficult and unpredictable world of interpersonal relationships are important hallmarks of adaptive development for children and youth. The degree to which children learn to establish, develop, and maintain satisfactory interpersonal relationships and terminate deleterious relationships with peers and adults is the essence of social competence.

School entry represents a particularly critical period for children having early onset difficulties in social behavior. Reid and Patterson (1991) indicated that many children demonstrating antisocial behavior patterns before school entry will continue coercive and aggressive behavior patterns with peers and teachers upon entering school. In the absence of intervention, this behavior pattern will be maintained throughout their school careers and beyond (Kazdin, 1987; Reid & Patterson, 1991). When children enter school with social competence deficits, they fail to acquire and/or perform prosocial behaviors in school settings. Consequently, these children are at early risk for school maladjustment as well as being prime candidates for early referral to special education services (Gresham & Reschly, 1988; Walker et al., 1992).

Earlier in this chapter I emphasized that students are considered at-risk for referral to special education based on their deviation from a *model behavioral profile.* Recall that this model behavioral profile reflects teachers' social behavior standards and expectations and is indicative of successful adjustment if it facilitates academic performance and is marked by the absence of disruptive behaviors that disturb the classroom ecology.

Two dimensions of prosocial behavior are particularly important in school settings: ***teacher-preferred social skills*** and ***peer-preferred social skills.*** Teacher-preferred social skills, sometimes called "academic survival skills" include behaviors that create quiet classrooms and facilitate academic performance. Examples of these behaviors are: completing tasks, making transitions quietly, following directions, listening to the teacher, and following classroom rules. Peer-preferred social skills differ substantially from the teacher-preferred domain. These behaviors are essential for the formation of friendships and peer acceptance, but have little to do with classroom success. Examples of these behaviors are: introducing self to others, joining ongoing play activities, complimenting peers, listening to peers' problems, and responding appropriately to peer pressure.

It is extremely important that those conducting comprehensive assessments of EBDs consider both teacher-pre-

ferred and peer-preferred prosocial behaviors in addition to externalizing and internalizing behavioral domains. The Walker et al. (1992) model of social-behavioral functioning presented in Figure 1 serves as a useful heuristic for conceptualizing an assessment of EBDs leading to accurate problem identification.

Quantification of Behavior

Behaviors within each of the above dimensions or domains can be quantified by measuring different aspects of behavior. Within behavioral assessment, behavior is quantified by four indices: (a) frequency/rate, (b) temporality (duration, latency, interresponse time), (c) behavioral products, and (d) intensity. Frequency of behavior refers to how often it occurs and is a useful index if behavior falls into discrete categories (e.g., number of correct oral responses to questions, number of temper outbursts, number of obscenities uttered). Frequencies of behavior are often converted to rates by dividing the frequency by the amount of time observed (e.g., 20 behavioral occurrences/10 minutes observation = 2 occurrences per minute).

Behavior can also vary along a ***temporality*** dimension. There are three temporal dimensions of behavior. Duration refers to how long a behavior lasts. Latency refers to the amount of time that elapses between an environmental event (e.g., a request) and a behavior (compliance with a request). Interresponse time refers to the time that elapses between behaviors (e.g., elapsed time between temper outbursts).

Behavioral products are the effects or results a behavior leaves in a particular environment. Examples of behavioral products are number of worksheets completed, graffiti written on desks, and number of paper wads in a student's desk. One difficulty with behavioral products as a measure of behavior is determining the individual responsible for the behavior. It should be remembered that behavioral products are not a measure of actual behavior, but rather the result of behavior.

Intensity refers to the amount of force with which a behavior is performed or the effect the behavior creates in a given environment. For example, screaming in class that is heard by the teacher and students five classrooms away has a higher intensity than screaming only heard by the teacher and students in a given classroom. Walker and Severson (1992) use an instrument called the *Critical Events Index* (CEI) which measures behaviors that have high intensity but relatively low frequencies. These behaviors, called ***behavioral earthquakes***, are problematic because of their intensity rather than their frequency and include behaviors such as: stealing, sets fires, physically assaults adults, injures others with weapons, and expresses suicidal ıts.

Behavioral Assessment Procedures

Systematic Screening for Behavior Disorders. Although there are a number of assessment procedures available, one system that has extensive evidence for reliability and validity for screening and selection purposes is the *Systematic Screening for Behavior Disorders* (SSBD) by Walker and Severson (1992). The SSBD is a multiple-gating screening device for the identification of students at-risk for behavior disorders. The SSBD is known as a multiple-gating device because it contains a series of progressively more expensive and precise assessments or "gates." The SSBD uses a combination of teacher nominations, teacher ratings scales, and direct observations of classroom and playground behavior to identify students who are at-risk for EBDs.

Figure 2 shows the SSBD multiple-gating procedure. The first gate involves having a teacher rank-order all students in the classroom on ***externalizing*** and ***internalizing*** dimensions of behavior. The three highest ranked ***externalizers*** and three highest ranked ***internalizers*** pass Gate 1. These six students are then rated on a behavior rating scale and behavior checklist (CEI). If they exceed normative criteria, they pass Gate 2. Gate 3 involves direct observations of students in the classroom and playground. If they exceed normative criteria on these measures, they pass Gate 3 and are given a prereferral intervention or may be referred to a student study team.

The SSBD is a well-conceptualized and well-researched instrument designed for identification of students with EBDs. Its multiple gating procedure represents an efficient method of identifying students with behavior problems and is designed to save time and money in the assessment process. The SSBD serves as one of the best examples of how assessment methods can be combined to identify students in need of intervention services and to assist in the identification of target behaviors for these interventions.

Functional assessment. Most assessment information collected using a traditional assessment model is not useful in designing interventions. For instance, intelligence tests, projective techniques, and standardized tests of academic achievement are not useful for intervention purposes because they do not identify the ***function(s)*** of behavior. ***Functional assessment*** describes the full range of procedures that can be used to identify the antecedents and consequences associated with the occurrence of behavior. ***Functional analysis***, on the other hand, refers to the experimental manipulation of environmental events to assess their impact on the occurrence of behavior. Interventions matched to the function of behavior follows two strategies:

(a) weakening the maintaining response-reinforcer relationship (e.g., punishment or extinction) or (b) establishing or strengthening a response-reinforcer relationship for adaptive behavior that replaces the function of the inappropriate or maladaptive behavior (Mace, 1994).

Functional assessment methods have been categorized as: (a) indirect, which consists of interviews and ratings scales, (b) direct/descriptive methods consisting of systematic behavioral observations in naturalistic settings, and (c) experimental methods involving standardized experimental manipulations intended to isolate contingencies controlling problem behavior. Based on these assessment methods, Carr (1994) suggested that problem behavior may serve at least four functions: (a) social attention, (b) escape/avoidance, (c) sensory reinforcement, and (d) access to tangible items or events. Within each of the categories, there may be subcategories of controlling environmental events. For example, social attention may be teacher-related or peer-related or escape/avoidance may be task-related or socially-related. The goal in functional assessment is to identify the function of behavior so that interventions based on this assessment can be designed and implemented.

Carr (1993) provided an insightful critique of the goals and philosophy of behavior analysis which suggested that behavior analysts are primarily, if not exclusively, concerned with ***functions*** of behavior. In this critique, Carr suggested:

> . . . true behavior analysts have, paradoxically, very little interest in behavior. Thus, knowing that a young boy diagnosed as autistic exhibits self-injury is, by itself, not very interesting. What is interesting is why the self-injury occurs (i.e., of what variables is it a function) . . . Topography (behavior) does not matter much;

Figure 2. Systematic Screening for Behavior Disorders (SSBD) Multiple-Gating Procedure

Model of Interpersonal Social-Behavioral Competence within School Settings

Social-Behavioral Competence

Teacher-Related Adjustment		Peer-Related Adjustment	
Related Behavioral Correlates		**Related Behavioral Correlates**	
ADAPTIVE	**MALADAPTIVE**	**ADAPTIVE**	**MALADAPTIVE**
1) Comply promptly 2) Follow rules 3) Control anger 4) Make assistance needs known appropriately 5) Produce acceptable-quality work 6) Work independently 7) Adjust to different instructional situations 8) Respond to teacher corrections 9) Listen carefully to teacher	1) Steal 2) Defy or provoke teacher 3) Tantrum 4) Disturb others 5) Damage property 6) Cheat 7) Swear or make lewd gestures 8) Aggress towards others 9) Ignore teacher	1) Cooperate with peers 2) Support peers 3) Defend self in arguments 4) Remain calm 5) Achieve much 6) Lead peers 7) Act independently 8) Compliment peers 9) Affiliate peers	1) Disrupt the group 2) Act snobbish 3) Aggress indirectly 4) Start fights 5) Short temper 6) Brag 7) Seek help constantly 8) Achieve little 9) Get in trouble with teacher
Outcomes		**Outcomes**	
POSITIVE	**NEGATIVE**	**POSITIVE**	**NEGATIVE**
Teacher acceptance School achievement/ success	Teacher rejection Referral for specialized placements School failure and/or dropout Low performance expectations	Peer acceptance Positive peer relations Friendships	Social rejection/ neglect Low self-esteem Weak social involvement or engagement

Table 1. Behavioral Assessment Model

Behavioral Assessment Model

TYPE OF BEHAVIOR PROBLEM
- Excess
- Deficit
- Situationally Inappropriate

DIMENSION OF BEHAVIOR
- Externalizing Behavior
- Internalizing Behavior
- Prosocial Behavior

QUANTIFICATION OF BEHAVIOR
- Frequency/Rate
- Temporality
- Duration
- Latency
- Interresponse Time
- Intensity/Magnitude
- Behavior By-Products (Permanent Products)

IV. BEHAVIORAL REPERTOIRE
- Cognitive/Verbal
- Overt/Motoric
- Physiological/Emotional

V. METHODS OF ASSESSMENT
- A. Direct Methods
  - Direct Observation
  - Self-Monitoring
  - Physiological Monitoring
- B. Indirect Methods
  - Functional Assessment Interviews
  - Ratings By Others
  - Self-Reports
  - Permanent Products
  - Analogue Role Play

VI. QUALITY OF DATA
- Reliability
  - Interobserver Agreement
  - Internal Consistency
  - Stability
- Validity
  - Content
  - Criterion-Related
  - Convergent
  - Discriminant
  - Treatment

VII. SOCIAL VALIDATION
- A. Social Significance of Goals
  - Consumer Opinions
  - Habilitative Validity
- B. Social Acceptability of Procedures
  - Pretreatment Acceptability
  - Posttreatment Acceptability
  - Use and Integrity
- C. Social Importance of Effects
  - Subjective Judgments
  - Social Comparisons
  - Combined Social Validation Procedures
  - Visual Inspection
  - Percentage Nonoverlapping Data Points (PNOL)
  - Effect Size Estimates
  - Reliable Change Index

function (purpose) does . . . behavior is not the thing of interest to behavior analysts (p. 48).

The primary purpose of functional assessment is to identify the ***functions*** (purposes) of behavior. Once these functions are identified, interventions can be designed to change problem behaviors based on this functional assessment.

Multiple operationalism. Any good model of behavioral assessment is based on the premise that behavior should be assessed from a variety of perspectives using a number of assessment methods and information sources. Table 1 lists a number of direct and indirect behavioral assessment methods that are used to assess students' behavior problems. It should be noted that for some behavioral difficulties, only one or two behavioral assessment methods are used. For example, assessment of truancy might focus exclusively on school attendance whereas the assessment of social skills might use multiple methods of assessment including behavior ratings by teachers and parents, direct observations, peer nominations/ratings, and self reports.

Multiple operationalism is based on the multitrait-multimethod (MTMM) approach of construct validation using the concepts of convergent and discriminant validity. Campbell and Fiske (1959) argued that validity evidence could be established by demonstrating relatively high correlations among several different methods of measuring the same trait (convergent validity) and showing relatively lower correlations among different traits measured by the same method (discriminant validity). The MTMM attempts to separate "method" from "trait" variance so that the convergent validity of a particular construct can be evaluated.

Cone (1979) reinterpreted the MTMM model for behavioral assessment by calling for ***multimethod-multibehavior-multicontent*** matrices. In this reformulation, "traits" are reinterpreted as response classes or descriptive clusters of behaviors that can occur across different content areas or behavioral repertoires (e.g., cognitive-verbal, overt-motoric, or physiological-emotional) using different assessment methods. For example, a student may be observed to breathe rapidly and perspire in response to anxiety-provoking situations (direct observation of physiological-emotional content). This same student may self-report that she breathes rapidly and perspires to these same anxiety-provoking situations (self-report of overt-motoric behavior). The agreement or disagreement between direct observation and self-report of these two behaviors between and within these behavioral repertoires allows for the separation of method, content, and content variance thereby providing for an assessment of the convergent validity for the response class or behaviors being assessed.

ELIGIBILITY BASED ON TREATMENT EVALUATION

Eligibility for special education for students with EBDs should be based on an objective evaluation of their responsiveness to treatment or intervention efforts. Recall that eligibility is based on students' resistance to quality interventions implemented with integrity. Several methods are available to assess responsiveness or resistance to intervention.

Visual Inspection

Visual inspection of graphed data is the most common way of analyzing data for students' responsiveness to intervention. Effects of intervention are determined by comparing baseline levels of performance to postintervention levels to detect treatment effects. Unlike complex statistical analyses, this method uses the "interocular" test of significance.

One problem with visual inspection of graphed data is that it is often subjective and is insensitive in detecting treatment effects. There is a considerable body of research suggesting that even highly trained behavior analysts cannot obtain consensus in evaluating graphed data using visual inspection (Center, Skiba, & Casey, 1985-86; Ottenbacher, 1990).

Two approaches to supplement visual inspection have been proposed to make the evaluation of treatment effects more objective: (a) percentage of nonoverlapping data points (PNOL) between baseline and intervention phases (Mastropieri & Scruggs, 1985-86) and (b) calculation of effect sizes from baseline and intervention phases (Busk & Serlin, 1992). In the PNOL approach, the number of intervention data points that exceed the ***highest*** baseline data point in an expected direction are calculated and divided by the total number of data points in the ***treatment phase***. For instance, if 10 of 15 treatment data points exceed the highest baseline data point, then PNOL is 67%. Although there are no standards for determining the "significance" of PNOL (e.g., $p<.05$); PNOLs of 65-75% might be considered moderate effects and PNOLs above 75% can be considered large effects.

Effect sizes have been used for years in meta-analytic research to synthesize large bodies of research. An effect size is simply a standard score (z score) computed by subtracting the mean of the experimental group on a given dependent variable from the mean of the control group and dividing this difference by the standard deviation of the control group. In graphed data, the treatment mean is subtracted from the baseline mean and this difference is divided by the standard deviation of the baseline phase (Busk & Serlin, 1992). Effect sizes calculated in this way can be used to supplement visual inspection and PNOL analysis.

Reliable Changes in Behavior

Another approach to evaluating responsiveness and resistance to intervention is the use of the ***reliable change index*** (RCI) (Christensen & Mendoza, 1986; Jacobson, Follette, & Revenstorf, 1984). The RCI is defined as the difference between a posttest score and a pretest score divided by the standard error of difference between posttest and pretest scores. The standard error of difference is the spread or variation of the distribution of change scores that would be expected if no change had occurred. A RCI of +1.96 ($p<.05$) would be considered a reliable change in behavior.

With graphed data of individual students, RCIs must be computed for baseline (pretest) and intervention (posttest) phases just like the calculation of effect sizes described earlier. The standard error of difference would be based on the autocorrelation and variation of baseline and intervention phases. The advantage of the RCI is that changes in behavior are reported for individuals rather than groups; reliable changes can be quantified from baseline to intervention; and confidence intervals can be placed around change scores to avoid overinterpretation of results.

Social Validation

Earlier in this chapter, social validation was described as occurring on three levels (social significance, social acceptability, and social importance). The ***social importance*** of the effects of intervention is the most relevant for evaluation treatment outcome. Recall that the social importance of the effects of intervention establishes the clinical or practical significance of behavior change rather than its statistical significance. In other words, did the change produced by the intervention represent a socially important change that has habilitative validity for an individual?

Fawcett (1991) suggested that one could socially validate a treatment on three levels by specifying a priori ***ideal*** (best performance), ***normative*** (typical performance), and ***deficient*** (worst performance) performance levels. As such, interventions moving a student from deficient to normative or ideal performance levels would be considered to have produced socially important changes in behavior.

Summary

A variety of methods are available for evaluating responsiveness or resistance to intervention. It is recom-

mended that practitioners use all the previously described methods of visual inspection, PNOL, effect sizes, reliable changes, and especially social validation to make an eligibility determination. Using these methods, a student could be considered eligible for special education and related services if a quality intervention implemented with integrity fails to produce detectable, substantial, reliable, and socially important changes in behavior.

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Transition From School to Adult Life

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Chapter 6

INTRODUCTION

Transition is the watchword for the nineties. The school to adult life process has been defined, researched and legislated. It is a federal requirement, a set of planning requirements, a way to connect service systems, an organizing structure for curriculum and other instructional experiences, and a political movement (Apple & Zenk, 1996; Brustein & Mahler, 1994; Hanley-Maxwell & Collet-Klingenberg, 1997; Hanley-Maxwell, Szymanski, & Owens-Johnson, 1997). More importantly, it is a personal event or life-stage that affects all people and their families (Daniels,1987; Hanley-Maxwell, Whitney-Thomas, & Pogoloff, 1995; Pallas, 1993). Current legislation requires that attention be given to this time period for students with disabilities (i.e., the Individuals with Disabilities Act, IDEA, 1997), and attention be given to better preparing ALL students for the world of work (i.e., the School to Work Opportunities Act, STWOA, 1994). However, the reality is that with or without legislation, all students must face these events as part of their normal development. The current federal and research emphases on this process are intended to ease the confusion and anxiety that surround this time period. Furthermore, it is hoped that the development of linkages between school and adult worlds, the provision of critical experiences, and the emphasis on specific curricular content and skills will result in smoother movement and more successful outcomes (Phelps & Hanley-Maxwell, 1997).

Most of us think about transition from school-to-adult life as a process that has a definite, predetermined beginning point, and a definite, predetermined endpoint. In actuality, if students with disabilities are going to be successful in the transition process, and in remaining employed and living as independently as possible after graduation, the entire process must start the day the student enters the school doors and will probably not end for many years after first job placement or first apartment, if at all (Hanley-Maxwell et al., 1997).

The concept of transition is not new (Hanley-Maxwell et al., 1997), nor does it bring to us any new methodologies beyond the development of the formalized emphasis on transition planning and a renewed emphasis on the critical nature of interagency collaboration and cooperation. However, it also brings into sharper focus the need to build education on the demands of and hopes for the adult life of each individual student. The process offers us an organizational strategy designed to make us look critically at: the content of school programs; the ability of professionals to work cooperatively, keeping the student's interests as the priority; and at the adult services that have been offered and are continuing to be offered to youth with disabilities.

Analysis of the results of the impact that special education programs have had on the adult lives of students with disabilities has not produced a positive picture. At the service level, there continues to be duplication of services, large gaps in availability of services, and the continuing practice of fitting young adults to the services offered rather than providing the services needed. This has all resulted in poor outcomes for students with disabilities (Hanley-Maxwell & Collet-Klingenberg, 1995).

The purpose of this chapter is to describe school to adult life transition and to provide the conceptual bases for transition as a service that is not dependent on categorical diagnosis. Several topics must be explored to accomplish this purpose. First it is important to examine the meaning of transition from various levels. Thus, the content of the first section revolves around what transition is. Further foundational information is provided in the second section. This section is a discussion of research that provides information about what outcomes are desired for students with disabilities and the factors that appear to influence success in adult roles. The third section is developed from the foundation provided in sections one and two. In this section, foundational information is applied to practice and recommendations are made to enhance success for students with disabilities.

THE MEANING OF TRANSITION

Transition to adult life has many meanings and many considerations. These meanings range from the developmental process to legislative mandates. In this section, each of these meanings is examined. Federal definitions, reflecting the institutional and social commitment to transition, are discussed first. Within this section, transition is also considered from the systems level as a planning process. Finally, the more personal aspects of transition are considered. These include transition as life stages for both the individual and for the family.

FEDERAL DEFINITIONS

Transition fits neatly within the current goals of American social and political agendas. It is a direct link between education and the economy (Apple & Zenk, 1996). Thus, education is often touted, theoretically, as the means to eliminate poverty, welfare, and crime, and reduce the need to provide ongoing financial assistance to those individuals who were previously considered unable to work. This is accomplished by providing students with the values and skills to become more competent, more flexible future workers (Kantor, 1994). Furthermore, the current emphasis is intended to ensure that American businesses have the skilled work force that is needed to remain globally competitive (Phelps & Hanley-Maxwell, 1997).

These social goals are not new. Starting with the Smith Hughes Act in 1917, the federal government has legislated activities and services that have dealt with preparing people to work. Definitions and descriptions of these initiatives have varied over the years (Hanley-Maxwell et al., 1997). The first formal definition for transition, "an outcome-oriented process encompassing a broad array of services and experiences that lead to employment" (Will, 1984, p. 2), was proposed in the Transition Initiative of the Office of Special Education and Rehabilitative Services (OSERS). More recent definitions have expanded concerns from employment to all of adult life (Halpern, 1993) and have become inclusive of nondisabled students (United States Department of Education, 1993). The federal concern for transition has moved from the being the exclusive province of education to being a focus for the adult service system as well. Recently, transition has been defined in three major laws, the School to Work Opportunities Act (STWOA), Individuals with Disabilities Education Act (IDEA), and the 1992 amendments to the Rehabilitation Act of 1973. Each of these is discussed below.

STWOA. STWOA is the latest act to deal with the issues that surround transition. This act grew from reform efforts in general education that increasingly recognized the need to consider preparation for adult roles in the educational processes. The enactment of STWOA in 1994 was an initiative that targeted the transition needs of all students. This act provides the foundation for assistance in the development and implementation of school-to-work transition systems in each state. Transition, as described by STWOA, is the connection of secondary education and further education or high quality jobs. It is intended that this connection is facilitated by education, business, and community partnerships and revised curricula that reflect applied foci (Brustein & Mahler as cited in Phelps & Hanley-Maxwell, 1997). This act parallels many of the emphases of its predecessors, IDEA and the 1992 amendments to the Rehabilitation Act of 1973.

IDEA. The 1997 amendments to the Individuals with Disabilities Education Act (IDEA) included a renewed and specific emphasis on transition. This legislation defined transition as:

> a coordinated set of activities for a student with a disability that --(A) is designed within an outcome-oriented process, which promotes movement from school to post-school activities, including postsecondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation; (B) is based upon the individual student's needs, taking into account the student's preferences and interests; and (C) includes instruction, related services, community experiences, the development of employment and other post-school adult living objectives, and, when appropriate, acquisition of daily living skills and functional vocational evaluation. (Individuals with Disabilities Education Act, 1997, Sec. 602[30])

It is critical to emphasize that the coordinated set of activities must be based on the individual student's ***needs,*** the individual student's ***preferences***, and the individual student's ***interests***. Thus, activities and plans must be based on a thorough and ongoing assessment of student needs, preferences and interests. Furthermore, the coordinated set of activities must include: instruction, related services, provision of community experiences, and, when appropriate, functional vocational evaluation. Content of these activities must include goals for outcomes in employment,

postschool adult living and community participation, postsecondary education or training, and, when appropriate, daily living skills. These should be discussed in any Individualized Education Program (IEP) meeting that considers transition. The IEP committee must use the assessment information to decide what activities are needed for each individual student. Assessment information would include the identification of long-term, postschool outcomes targeted by each student and his or her family. Once postschool targets are identified, an analysis of the skills required to achieve and be successful in those target outcomes must be completed. Then, an assessment of student functioning in relation to those skills must be conducted, or extant data related to student performance in relation to needed skills must be obtained and summarized. Finally, if the IEP team decides a specified service or type of goal is not necessary (e.g., because it is not needed by the student to achieve the targeted outcomes), the rationale must be specifically stated within the IEP.

To further ensure that transition needs are actively considered in each student's educational program, the law specifies how transition planning must be incorporated into the IEP process. The law requires:

> (I) beginning at age 14, and updated annually, a statement of the transition service needs of the child under the applicable components of the child's IEP that focuses on the child's courses of study (such as participation in advanced-placement courses or a vocational education program);
>
> (II) beginning at age 16 (or younger, if determined appropriate by the IEP Team), a statement of needed transition services for the child, including, when appropriate, a statement of the interagency responsibilities or any needed linkages; and
>
> (III) beginning at least one year before the child reaches the age of majority under State law, a statement that the child has been informed of his or her rights under this title, if any, that will transfer to the child on reaching the age of majority under section 615(m); and (viii) a statement of -- (I) how the child's progress toward the annual goals described in clause (ii) will be measured; and (II) how the child's parents will be regularly informed (by such means as periodic report cards), at least as often as parents are informed of their nondisabled children's progress, of -- (aa) their child's progress toward the annual goals described in clause (ii); and (bb) the extent to which that progress is sufficient to enable the child to achieve the goals by the end of the year. (Individuals with Disabilities Education Act, 1997, Sec. 6142[d][1])

It should be noted that the federal mandate requires that ***all students who are 14 and have an IEP*** (i.e., receive special education services) be provided with transition planning and services (Hanley-Maxwell & Collet-Klingenberg, 1995). Furthermore, it should be emphasized that school personnel are responsible for inviting other agencies to the meeting if they are likely to be responsible for providing or paying for transition services for the individual student. If an agency cannot or will not attend the IEP meeting, school personnel must find other ways to ensure their input is discussed in a full IEP meeting. It is important to note that IDEA requires that students be invited to their IEP meetings whenever transition is considered, and that their parents/guardians must be notified that the student is invited. If a student does not attend the IEP meeting, other steps must be taken to ensure that the student's interests and preferences are considered. Finally, the 1997 revisions have included the additional stipulation that students must be informed about their rights as they reach the age of majority.

IDEA now allows rehabilitation counseling to be considered as a related special education service. Furthermore, rehabilitation counseling must be provided individually or in groups by qualified personnel if the IEP committee decides that it is necessary for the student to benefit from his or her special education.

Finally, the law clearly recognizes that educators should not plan in a vacuum or make commitments for other service providers. It reflects the reality that services provided to adults are not mandated, and often unavailable or unstable. As a result, the law includes a safety net for students with disabilities by stating that:

> If a participating agency, other than the local educational agency, fails to provide the transition services described in the IEP in accordance with paragraph (1)(A)(vii), the local educational agency shall reconvene the IEP Team to identify alternative strategies to meet the transition objectives for the child set out in that program. (Individuals with Disabilities Education Act, 1997, Sec. 614[d][5])

Rehabilitation Act Amendments

In 1992 the Rehabilitation Act of 1973 was amended to include transition services. The definition is extremely similar to that used in IDEA. This similarity has assisted in connection between the two systems. The 1992 Amendments to the Rehabilitation Act of 1973 defines transition services as:

> a coordinated set of activities for a student designed within an outcome-oriented process that promotes

movement from school to postschool activities, including post secondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation. The coordinated set of activities shall be based on the individual student's needs, taking into account the student's preferences and interests, and shall include instruction, community experiences, the development of employment and other post school adult living objectives, and when appropriate, acquisition of daily living skills and functional vocational evaluation. (The Rehabilitation Act Amendments of 1992, PL 102-569, Sec. 7 [35]).

The act requires that state rehabilitation agencies cooperate with other agencies that provide services to adults and adolescents in transition. Specifically, the law requires that interagency work groups be established to identify: (a) practices, policies and procedures to enhance the coordination among agencies; (b) resources, ways to coordinate the financing of needed services, and procedures to deal with disputes related to funding of necessary services; (c) practices, policies and procedures for the collaborative development of education and rehabilitation goals and objectives; and (d) ways to enhance the connection of educational services and services provided by the rehabilitation agency.

LIFE STAGE

Each individual progresses along an individual continuum of development in the areas of physical, emotional, and intellectual growth. As adults, persons in American society are expected to develop responsibility. This responsibility includes learning how to control, direct and maintain his or her life, and contributing to our families and society. As a society, we have developed a set of markers that designate movement into adulthood. These markers include: completion of formal schooling, employment, marriage, increasing autonomy in decision making, and living away from home (Marini, 1984). Achieving adulthood status is a difficult and confusing process for most children. Throughout life, and in particular adolescence, families struggle with the continuing redefinition of parent-child relationships. During this period of time, adolescents learn the skills needed to develop and act on realistic self-expectations (Wehmeyer, 1994). The desired outcome to this struggle is increased independence and a sense of self for the young adult, and the continued provision of positive social influences and emotional bonds from the family (Ryan & Lynch as cited in Hanley-Maxwell et al., 1998; Lichtenstein, 1998).

However, adolescents with disabilities and their families often find themselves in circumstances that represent variations of what is typically encountered by adolescents without disabilities and their families. They must face bureaucratic, family functioning and status transitions (P. Ferguson, D. Ferguson, & Jones, 1988) that are complicated by the presence of a disability. Each of these types of transitions is discussed below.

Bureaucratic

Unlike their nondisabled counterparts, students with disabilities and their families are often part of a web of settings and people who make up the social service and disability service systems (Lesar, Trivette, & Dunst, 1996). The operations and requirements of these systems vary dramatically from system to system. Perhaps the most difficult aspect to deal with is the fact the school services are regulated, required and known while adult service systems are not mandated, unknown, and often unavailable (P. Ferguson et al., 1988, Hanley-Maxwell et al., 1995; Whitney-Thomas & Hanley-Maxwell, 1996). For most, entry into and initial navigation of these systems requires assistance of a knowledgeable transition coordinator or teacher within the school (Gallivan-Fenlon, 1994; Hanley-Maxwell et al., 1995). And, while school personnel and families are partners in preparing young adults for the adult world (Whitney-Thomas & Hanley-Maxwell), the lack of ongoing or unpredictable services continues to concern many families as they face the future with their children (Hanley-Maxwell et al., 1995; Thorin, Yavanoff, & Irvin, 1996).

Family Functioning

Families also face changes within their own family systems. All families develop routines and patterns that provide organization and stability to the family members. In the natural life cycle of families, life events of individual family members affect other family members by disrupting established routines and patterns. The result of this impact is disequilibrium for the family. Families then struggle to achieve equilibrium by establishing new routines and patterns, which remain intact until the next life event. As a result of the continuing development of individual family members, families are constantly developing (Minuchin as cited in Hanley-Maxwell et al., 1998). The approach of adulthood for a child in the family is a significant life event. When the child who is approaching adulthood is also disabled, the impending change is often viewed as a crisis, especially if the child is someone for whom independence will be more difficult. Families of these children are faced

with limited or nonexistent services that complicate the continuation of existing family patterns. For instance, some parents have to consider whether or not both parents will be able continue to work when mandated daylong and daily services cease. Families of children with disabilities often struggle with their desire to develop their child's independence in light of the reality of their child's need for ongoing support and assistance and the lack of needed services (P. Ferguson et al., 1988; Hanley-Maxwell et al. 1995). Family functioning changes are often influenced by the bureaucratic changes each family faces. Furthermore, family functioning changes are influenced by and influence status changes for the individual with a disability.

Status

Adolescents also face status changes as they move into adulthood. At age 18 children cease legally to be children and legally become adults. With this legal status change comes questions associated with the transition process. These questions include who initiates request for services, the child or the parent (family functioning and bureaucratic issues), and who is in charge of life decisions after age 18 (family functioning and status issues)? For some families one answer is to initiate legal action related to competence and guardianship (Quadland, Rybacki, Kellogg, & Hall, 1996). The answers to these questions and the subsequent actions taken by families are the result of decisions that are made by weighing potential ongoing support needs against the independence needs and wishes of the child approaching adulthood. These decisions are complicated by the reality of service system issues for adults with disabilities in their local communities. Unfortunately, the lack of services, especially in the area of independent living, means that many young adults and their families must perpetuate roles that they would normally have ended (P. Ferguson et al., 1988; Hanley-Maxwell et al., 1995; Haring & Lovett, 1990; Irvin, Thorin, & Singer, 1993; Stineman, Morningstar, Bishop, & H. Turnbull, 1993) .

POSTSCHOOL OUTCOMES

The impetus for adding emphasis to the ending point of education came from data that deal with postschool outcomes. These data reveal that students with disabilities are less successful than their nondisabled peers on all indicators of adult status. This research also revealed factors that appeared to be correlated with these differences. In this section, desired and actual outcomes are reviewed first. In the second part of the section, a variety of factors that affect these outcomes are discussed.

Outcomes

Outcomes can be considered within several frameworks. A variety of federal reports and conceptual models have been developed in an effort to lend clarity to the discussion of outcomes, and to improve those outcomes. Two major federal reports, Goals 2000 (U.S. Department of Education, 1993) and *What work requires of schools: A SCANS report for America 2000* (SCANS) (U.S. Department of Labor, 1991), provide direction to all of education. Goals 2000 set education goals that needed to be met by the year 2000. The SCANS report identified skills that students would need to be successful in America's work force. Two conceptual frameworks specific to special education have been advanced. These two frameworks, The National Center for Educational Outcomes, NCEO (Bruininks, Thurlow, & Ysseldyke, 1992) and Quality of Life, QOL (Halpern, 1993), identify skill areas that need to be considered as students are prepared for their adult lives. Taken together, these reports identify three areas that need to be addressed: graduation, academic and social skill competence, and parent-school partnerships. Each of these areas is discussed below. The discussions include descriptions of the intended outcome(s) and data related to current outcomes for students with disabilities.

Graduation

For any student to benefit from the educational process, that student has to be in school. Thus, school reform efforts target graduation as one desired school outcome. The Goals 2000: Educate America Act of 1993 specifically targets graduation by setting a goal to reach a 90% graduation rate by the year 2000. This concern is echoed in the NCEO document (Bruininks et al., 1992). This document stressed the need for students with disabilities to be present and participate in educational activities. Without presence and ***participation***, students with disabilities cannot be prepared to assume adults' roles.

Current data regarding students with disabilities indicate that significant change is needed before this outcome can be achieved. Several studies have examined the dropout rate for students with disabilities (Benz & Halpern, 1987; Edgar, 1987; Wagner, Blackorby, Cameto, & Newman, 1993). Average dropout rates for all students with disabilities varied from 18% to 48%, as compared to a drop out rate for nondisabled students that varied from 12% (Benz & Halpern) to 25% (Wagner, 1991). The highest dropout rates were for students considered emotionally or behaviorally disabled (45%, Edgar; 48%, Wagner et al.). Students with learning disabilities or mental retardation had lower

dropout rates, 28% (Wagner et al.) to 42% (Edgar), and 18% (Edgar) to 29.9% (Wagner et al.), respectively. In each study, the dropout rate for students with disabilities was dramatically higher than that of their nondisabled peers. Finding the factors that contribute to these high drop out rates is difficult. However, an interesting factor was found in the National Longitudinal Transition Study (NLTS) database. This analysis found an association between completion of occupationally oriented vocational education courses and lower drop out rates (Wagner et al.).

Academic and Social Competence

All of the desired outcome reports stress the development of academic and social competence and the application of those skills and knowledge to help students assume socially responsible adult roles (employment, citizenship, continued learning). Goals 2000 specifically identifies this area in two of the ten outcomes specified. Other desired outcome reports (Bruininks et al., 1992; Halpern, 1993) provide the framework for achieving these broader outcomes by specifying outcomes in the areas of physical and material well-being, performance of adult roles, social responsibility, and personal fulfillment. Skills are needed in the following areas if these outcomes are to be achieved: basic, ***applied*** academics, e.g., reading, math, writing, listening, speaking (Bruininks et al.; U.S. Department of Labor, 1991); thinking skills, e.g., decision making, problem solving, reasoning (Bruininks et al.; U.S. Department of Labor); and social/personal skills (responsibility and commitment, self-esteem, self-management, interpersonal, ethics), self-dependence, social/behavioral, and physical/mental health skills (Bruininks et al.; U.S. Department of Labor). The importance of developing social skills is underscored by research results that indicate: (a) the most common reasons for termination from employment are related to inadequate social skills (Hanley-Maxwell, Rusch, Chadsey-Rusch, & Renzaglia, 1986; Greenspan & Shoultz, 1981), (b) interpersonal communication difficulties are the most commonly reported work environment problems (Chadsey-Rusch & Gonzalez, 1988), and (c) joking and teasing are the most common interactions in the work environment (Chadsey-Rusch & Gonzalez). Applied academics, thinking and social skills need to be woven together to perform effectively in work environments (U.S. Department of Labor). For students with disabilities, skills in these areas also need to include consideration of adaptation, compensation, and accommodation (Bruininks et al., 1992); that is, modifications to skill requirements, task sequences, performance or learning settings, or the use of equipment (e.g., recorders) to enable students to accomplish tasks that they would not have been able to do otherwise.

Students with disabilities have mixed results when academically related outcomes are examined. Results from the largest transition follow-up study, the NLTS suggest variations in skill attainment. The majority of former students are rated highly on their performance of self-care tasks (i.e., 98% learning disabled, 96% emotionally disabled, 85% mentally retarded, 99% speech and language impaired). However, ratings for functional mental skills (time telling, reading common signs, counting change, using a phone book and phone) revealed problems. Only slightly more than two thirds of former students with learning disabilities, emotional disturbance or speech and language impairment were rated highly. The remaining one third received moderate ratings in this area. Former students with mental retardation were rated more poorly than their other peers with other disabilities. For the former students with mild/moderate mental retardation, only 40% were rated highly while 46% were rated at the moderate skill level. The remaining 14% received a low skill rating in functional mental skills.

Performance of actual adult roles also revealed variations. Employment is an adult role that has received the greatest study. While actual rates of employment vary from study to study, and disability category to disability category, all studies reveal that employment outcomes are still poor for individuals with disabilities (Bruininks, Lewis, & Thurlow, 1988; Edgar, 1987; Hasazi, Gordon, & Roe, 1985; Hasazi, Gordon, Roe, Hull, et al., 1985; Kortering & Edgar, 1988; Mithaug, Horiuchi, & Fanning, 1985; Neel, Meadows, Levine, & Edgar, 1988; Sitlington & Frank, 1990; Scuccimarra & Speece, 1990; Wagner et al., 1993). Furthermore, as indicated below, poor outcomes are found in other areas of adult living. The NLTS database provides comprehensive information related to seven areas of adult living: (a) enrollment in post-secondary education, (b) enrollment in post-secondary vocational training, (c) competitive employment, (d) independent living, (e) participation in community, (f) parenting, and (g) arrest records. This student data was collected at two points in time. The first follow-up was conducted so as to collect data on students who were out of school less than two years. The second follow-up collected data on the same students who were then out of school between three and five years.

NLTS data revealed relatively low rates of competitive employment for most former special education students (46% for persons with disabilities compared with 59% for persons without disabilities) (Blackorby & Wagner, 1996). Actual employment rates varied according to disability (i.e., 59.2% for persons with learning disabilities, 50.1% for per-

sons with speech and language impairments, 40.7% for persons with emotional disturbance, and 25.4% for persons with mental retardation) (Blackorby & Wagner). But, nearly all employed individuals were underemployed in terms of skills, wages or hours worked (Phelps & Hanley-Maxwell, 1997). Data from students who were between three to five years out of school suggest length of time out of school is associated with positive employment trends. In fact, competitive employment rates for former students with learning disabilities (70%) or speech and language impairments (65%) are equal to those of their nondisabled peers (69%). Despite these gains in employment, other individuals with disabilities continue to lag significantly behind their nondisabled counterparts (Blackorby & Wagner).

Given that the vast majority of students with disabilities are classified in school as mildly disabled, we would expect their enrollment in post-secondary training options to be similar to that of their nondisabled peers. These are not the patterns revealed in the NLTS sample (overall enrollment data for students out of school up to two years and three to five years, 14% increasing to 27% for students with disabilities versus 53% increasing to 68% for students without disabilities) (Blackorby & Wagner, 1996). Disability-specific figures for enrollment in any postsecondary education experience up to **five years** after leaving school are 39.4% for students with speech and language impairments, 23.7% for students with mental retardation, 44.1% for student with learning disabilities, and 40.2% for student with emotional disabilities (compared to 68% for students without disabilities) (Blackorby & Wagner). Enrollment rates in post-secondary vocational training were also not good: 18% for student with speech and language impairments or learning disabilities, 13% for students with emotional disabilities, and 6% for students with mild/moderate mental retardation (Wagner et al., 1993).

Community participation is measured in a variety of ways in the NLTS study. The first measure is participation in the general aspects of community life (i.e., working or participating in education outside the home, residing in independent settings, participating in social activities). Full participation in at least two of these aspects was reported for 79% of the former students with speech and language impairments, 74% of the former students with learning disabilities, 56% of the former students with emotional disturbance, and 42% of the former students with mild/moderate mental retardation (Wagner et al., 1993). The second measure in this area is percent living independent of their family of origin. These results were significantly poorer than those in the previous measure. Only 36% of the former students with speech and language impairments, 34% of the former students with learning disabilities, 21% of the former students with emotional disturbance, and 15% of the former students with mild/moderate mental retardation were living independently. Furthermore, while parenting and arrest rates for nondisabled peers tended to be extremely low (21% and 9%, respectively), parenting and arrest rates for former students with learning disabilities was alarmingly high (50% and 19.9% increasing to 31%, respectively) (Wagner et al.). The second follow-up of these students revealed positive trends for all former students in these general areas of adult living (Blackorby & Wagner, 1996).

Parent-School Partnerships

Two of the outcome reports stress the need to develop parent-school partnerships. The Goals 2000 report represents the recognition of the critical roles that families play in the academic and social development of children. This report directs school personnel to develop partnerships with parents. The NCEO (Bruininks et al., 1992) report provides the acknowledgment that school leaving does not end the support and development roles played by family members. Furthermore, the Bruininks et al. report underlines the reality that families provide lifelong support for most adults with disabilities. This report directs school personnel to develop family coping and support skills.

Research results indicate why it is important to involve parents during the school years and why it is important to develop family coping and support skills. These results reveal that many individuals with disabilities continue to live at home (Haring & Lovett, 1990), experience social isolation (Lichtenstein & Michaelides, 1993) and inactivity (Mithaug et al., 1985), and have their families as the primary and, sometimes, only source of social interaction and community involvement (Scuccimarra & Speece, 1990; Sitlington & Frank, 1990). Finally, family characteristics are associated with achieved postschool outcomes (Fourqurean & LaCourt, 1990; Heal & Rusch, 1995). School personnel need to work with families respecting their differences and enhancing their capabilities to positively affect the life of their member with a disability.

FACTORS THAT AFFECT OUTCOMES

There are many factors that could influence the postschool outcomes for students with disabilities. Current research gives a glimpse into some of these factors that appear to be positive and negative influences. These factors can be grouped into four major areas: demographics, programmatic, career development and family involvement.

Each of these is discussed below.

Demographics

There are demographic factors that have a clear impact on outcomes for former special education students. Unfortunately, demographics are static factors that cannot be changed. However, awareness of the differential outcomes for these groups of students may lead to greater attention to their transition needs. Ethnicity is the first demographic factor that appears to be correlated with outcomes. Minority students have poorer initial outcomes than white students do. This is especially true for African American students (Heal & Rusch, 1995; Wagner et al., 1993). Interestingly, while these African Americans make the greatest gains in competitive employment in the postschool years, their wages earned tend to make minimal gains when compared with their white and Hispanic counterparts (Blackorby & Wagner, 1996). Furthermore, lower socioeconomic status appears to be correlated with poorer outcomes (Edgar, 1987). Gender differences reveal poorer outcomes for females (Heal & Rusch; Wagner et al.). Young women with disabilities tend to assume the traditional roles of wife and mother. Thus, they are more likely to live independently, but less likely to be employed (Blackorby & Wagner). Ethnicity is also related to independent living outcomes. Immediately following school, Hispanic students are most likely to be living independently. But, as time passes, white students show the greatest gains in the area of independent living (Blackorby & Wagner).

Programmatic

Various programmatic aspects have been found to positively influence the outcomes for students with disabilities. These aspects include both programmatic content and program placement issues.

Content that has been found to be positively correlated with better employment outcomes include: independent living and academic skills (Fourqurean & LaCourt, 1991; Heal & Rusch, 1995); reading, math, and writing skills (Carnevale et al. as cited in White, 1992; Fourqurean & LaCourt, 1991; Okolo & Sitlington, 1988; Shapiro & Lentz, 1991); problem solving and communication using academic skills (Smith & Trist as cited in White); and time telling, reading common signs, counting change, and using phone book and phone, skills known as functional mental skills (Wagner et al., 1993). How these skills are incorporated into curricula appears to be important, too. Community focused curriculum (Heal & Rusch) and the blending of functional and academic skills (Eagle, Choy, Hoachlander, Stoddard, & Tuma, 1989; Gugerty, Tindall, Heffron, & Dougherty, 1988; Hayward & Wirt, 1989; Wagner, 1991) result in more positive outcomes.

Placement in various programmatic options is related to outcomes. Students who have participated in advanced math and foreign language classes (Wagner et al., 1993) appear to have better outcomes. This result should not be unexpected, given that the connection between type of handicap and IQ and outcome attainment suggests that less severely disabled students and those with higher IQs have better outcomes (Fourqurean & LaCourt, 1991). Students with milder disabilities and higher IQs would be most likely to enroll in the advanced courses.

Participation in occupationally oriented vocational education during last school year (Wagner, 1991) and participation in vocational courses (Wagner et al., 1993; Hasazi, Gordon, & Roe, 1985; Hasazi, Gordon, Roe, Hull, et al., 1985; Mithaug et al., 1985) have been shown to be related to better employment outcomes for students with disabilities. However, other studies have shown no support for vocational education when other factors are controlled (Heal & Rusch, 1995; Sitlington & Frank, 1990). Despite these equivocal results, one vocational factor has been consistently related to favorable outcomes. That factor is employment during high school (e.g., Hasazi, Gordon, & Roe; Hasazi, Gordon, Roe, Hull, et al.; Mithaug et al.). Furthermore, participation in high school work experience in general has been connected with positive postschool employment outcomes (Wagner et al.).

Finally, graduation and school participation (Bruininks et al., 1992; Goals 2000 U.S. Department of Education, 1993) are student outcomes in the early adult years. First, participation can be viewed as the time spent in regular education classes. Time spent in regular education classes is positively correlated with better post school outcomes for many students, although this varies with type of disability (Wagner et al., 1993). Furthermore, graduation was found to be correlated with better outcomes for students with disabilities (Fourqurean & LaCourt, 1991; Wagner et al.).

Career Development

Career development is a life long developmental process that is not limited to the school years (Szymanski, 1994). The process revolves around the interaction of continually changing factors that include the person, the contexts and environments in which the person finds him or herself, the presence of mediators, and the outcomes experienced (Szymanski, Hershenson, Enright, & Ettinger, 1997).

Various theories have been developed to describe the career development process. The theory of work adjustment is one of these theories. This theory utilizes the constructs of work personality, work competencies, and work goals (Hershenson, 1981, 1984). "Work personality develops during the preschool years, work competencies during the school years, and work goals develop during the later school years" (Szymanski, 1994, p. 403). According to work adjustment theory, early play, home and school work responsibilities, exposure to career models, and exploring work roles through career fantasies provide for the basis for the development of work goals. Work goals are refined by work experiences and learning opportunities that occur during childhood and adolescence. Furthermore, the expectations of family, community members and the culture of the individual influence work adjustment (Szymanski).

A model of career development cannot be adopted or excluded based on the presence of disability alone. Individuals with disabilities represent a great deal of diversity in all aspects of their lives (Hanley-Maxwell et al., 1997). Instead, disability should be considered a risk factor like many other risk factors: severity of disability, socioeconomic status, parental attitudes, and opportunities or experience (Rojewski, 1994; Szymanski & Hanley-Maxwell, 1996). Each of these factors can mediate the impact of the other factors. Furthermore, experiences can mediate the effect of disability on career development. For instance, having had home or school chores is positively related to postschool employment for people with congenital disabilities (Victor, McCarthy, & Palmer, 1986). Moreover, exposure to role models who are similar to the child (e.g., race, gender, disability) can influence the career development of the child (Betz & Fitzgerald, 1995). Experiences also influence interests since interests are not innate, they are learned. If disability limits life experiences, then interests and the assessment of these interests will be limited (Szymanski, 1994). One major problem faced by individuals with disabilities is premature foreclosure on career goals. Students need to be encouraged to explore and evaluate many alternatives before they make career decisions (Blustein, 1992) and IEP committee members need to remember that "the transition component of the Individualized Educational Program (IEP) addresses a point in time on the career development continuum and should expand rather than restrict the range of occupational choices available to a student" (Szymanski, 1994, p. 404).

Family Involvement

Having families and professionals working as a team (Ellison, 1993) in transition planning is currently considered a vital component of successful transition programming (Everson & McNulty, 1992). Students with disabilities also desire this involvement. Morningstar, Turnbull, and Turnbull (1996) found that the students they interviewed indicated a desire and need for the continued active involvement of their families as a primary assistance source in planning for the future and as a social support after they had moved out of the family home. In addition, these students reported that family members played a major role in career selection by acting as guides and career models. Family members should be the leaders and decision makers in the transition process (Nisbet, Covert, & Schuh, 1992) because they will continue to be actively involved, provide information, mediate service connections, develop work support behaviors, act as advocates and de facto case managers, and provide a safety net for the young adult (P. Ferguson et al., 1988; Irvin et al., 1993; Yancey, 1993). However, the students interviewed by Morningstar et al. (1996) also expressed concerns about their families exerting too much control over their lives. Families may also have limited expectations for the student. Gallivan-Fenlon (1994) found that individuals with disabilities had greater expectations for themselves than did the adults in their lives. In this manner and in other ways, families can serve as impeders of adapting to adult roles (Irvin et al.). Thus, a balance between family assistance and family dominance must be established. This balance can be achieved through thoughtful assessment and planning practices and ensuring the acquisition of critical self-efficacy skills. These areas of application and others are addressed in the following section.

APPLICATIONS

As a process, transition has specific steps that must be accomplished. These steps include, but are not limited to: school instruction, assessment and planning for transition and postsecondary education/employment/independent living options (Wehman, 1986; 1992). Critical activities that are related to these steps are discussed in this section. School instructional activities include: curricular choices, assessment, and work activities and experiences. Planning for transition includes both the planning and connecting activities. Each one of these topics is discussed below.

CURRICULAR CHOICES

As described in the overview of career development theory, instruction for adult life occurs throughout the life of the child, in all settings, and with all people (Szymanski, 1994). School instruction provides the opportunity to coor-

dinate these instructional aspects and ensure the inclusion of critical components. Currently, educators, parents and community members debate what should be the scope and content of secondary school curricula. In secondary education programs that serve youth with disabilities, the debate revolves around three basic models: (a) functional skills models that emphasize vocational/employment preparation and independent adult living skills; (b) process models in which learning strategies are taught; and (c) academic skills models that include tutorial, completing regular education requirements, basic skills, and functional literacy approaches (Gajar, Goodman, & McAfee, 1993). Unfortunately, the curricular models are often seen as mutually exclusive and students are placed into a program based on one model or the other. Most often, the choice is between the functional and academic models (Gajar et al.). Such placement ignores the fact that transitional curriculum should be based on the demands of adult life, and specifically the skills that are critical to the survival of the individual in targeted adult settings. The exact skills needed vary according to current environments, future environments, level of student need, and student aspirations. The skills needed do not vary according to disability label! Exact content should be individually determined for each student, their needs and their goals (also considering parent/guardian wishes) through the IEP process.

Currently available curricular materials can assist the educators in identifying potential instructional areas and in sequencing activities. However, these materials are not, and cannot be, exhaustive enough to meet the needs of each individual student. Instead, educators need an organizational system that helps them select relevant aspects from existing curricular materials and identify the areas in which programs and materials will have to be developed to meet the unique needs of the student. Hanley-Maxwell and Collet-Klingenberg (1995; 1997) proposed an organizational model that incorporates traditional curricular domains and the curricular models into a three-part system, foundational or fundamental skills, integrative skills, and application skills. Each aspect of this system is discussed below.

Foundational/Fundamental Skills

Skills that are considered foundational or fundamental are those that are the most basic skills needed in school and postschool settings. They are considered foundational in that more complex skills are built from these, including both simple and complex skills (Gajar et al., 1993; Ford et al., 1989) in the areas of academics, personal care, and com- ation.

Academics. Academic skills in the areas of reading, writing, and math have been identified as critical for adult life. Needed performance demands range from basic survival to highly technical use (Hanley-Maxwell & Collet-Klingenberg, 1995; 1997). Necessary reading skills include deriving meaning from pictures, figures, symbols and words. Performance levels range from simple sound identification and word definitions to prediction from, and synthesis and analysis of reading content. Necessary math skills include working with whole numbers, adding, subtracting, money use, time telling, measurement and estimation. These basic skills are needed in a variety of, everyday activities. More advanced skills (e.g., multiplication, division, decimals, fractions, percent, mixed operations, word problems and mathematical reasoning), are not critical to everyday living, but are often useful in a variety of jobs. Writing is a complement to the skills acquired in math and reading. The simplest writing skill is that of making your name mark on legal documents. The more advanced aspects of writing revolve around the generation of information. Having at least a basic level of writing skill is critical to participation in work and community environments (Hanley-Maxwell & Collet-Klingenberg).

Personal care skills. Personal care skills are often called activities of daily living (e.g., dressing, grooming, hygiene, eating, mobility). Performance levels in these areas determine how independently a person can live and participate in community and work environments (Hanley-Maxwell & Collet-Klingenberg, 1997). These skills are also seen as critical supporting skills for employment success (Gajar et al., 1993; Karge, Patton, & de la Garza, 1992; McCrae, 1991).

Communication skills. Communication, listening and speaking (verbally and nonverbally), is used in every aspect of life. At the most fundamental level, communicating basic needs, it is critical for survival. More advanced skills are needed in work and community environments (Hanley-Maxwell & Collet-Klingenberg, 1995). Skills identified as critical to work environments include: giving and following instructions, asking and answering questions, requesting and giving assistance, giving and taking criticism and feedback, and interpreting nonverbal messages and signals (Carnevale et al. cited in White, 1992; Karge et al., 1992; McCrae, 1991; Rusch, Schutz, & Agran, 1982; U.S. Department of Labor, 1991).

Integrative Skills

The performance of fundamental skills is essential for all learners. However, student characteristics and skill levels needed to meet future goals will often determine the

level of sophistication in any one area. Unfortunately, too much attention to skills in these areas often precludes attention to the skills needed for autonomy and adaptability in adult settings (Hanley-Maxwell & Collet-Klingenberg, 1997; Michaels, 1994). These skills, called integrative skills, are also critical fundamental skills for all students.

Integrative skills are taught within the context of learning in other skill areas and everyday living. The skills in this section, problem solving skills, self-efficacy skills, self-advocacy skills, planning skills, social skills, and personal values, are interrelated. Performance of these skills requires various combinations of foundational skills and the covert cognitive skills of decoding, deciding, and evaluating (Hanley-Maxwell & Collet-Klingenberg, 1995; 1997).

Problem solving skills. Problem solving skills have been specifically identified as a critical transition competence. The skills in this area are seen as vital to participating in and directing the planning for the individual's life. These skills have also been specifically mentioned in a variety of employment-related studies and reports (Hanley-Maxwell & Collet-Klingenberg, 1997). Problem solving includes: (a) decoding - identifying the problem, defining potential solutions and consequences, and identifying potentially needed resources; (b) deciding - selecting one solution and the required actions; (c) acting; and (d) assessing that solution's success and identifying needed adjustments (Berg, Wacker, & Flynn, 1990; Chadsey-Rusch, 1986; Mithaug, Martin, & Agran, 1987; Renzaglia & Hutchins, 1988) .

Self-efficacy skills. Self-efficacy involves attitudes and skills related to taking charge of one's own behavior. Self-efficacious behavior requires the use of problem solving skills and the development of additional skills such as knowing one's own interests and abilities, providing self-consequation including reinforcement and correction, monitoring and controlling of one's own actions, and assertiveness in relation to his or her own needs or desires (Martin, Marshall, & Maxson, 1991; Mithaug et al., 1987; Gajar et al., 1993; West, 1989). Unfortunately, self-efficacy skills and problem solving skills are just beginning to appear in curricular materials (Hanley-Maxwell & Collet-Klingenberg, 1997).

Self-advocacy skills. Self-advocacy skills weave together a variety of skill areas (communication, behavior, problem solving). To self-advocate, an individual must initiate contact, convince others, self-assert, and respond to others' behavior. Various combinations of these skills should be taught to assist the student in learning how to avoid victimization, effectively communicate needs and desires, and appropriately respond to/offer criticism (Hanley-Maxwell & Collet-Klingenberg, 1997).

Planning skills. Planning skills are needed if the student is going to participate in IEP development and manage daily demands. Skills in this area include: identifying and acquiring resources, setting goals, organizing, and prioritizing. The decision making process often requires the combination of planning and problem solving skills (Hanley-Maxwell & Collet-Klingenberg, 1995).

Personal values. Personal values is a catchall category that includes: self-esteem, responsibility and dependability, quality of work, personal ethics, and response to peer pressure. Personal values are reflected in and reflect problem solving and self-efficacy skills. They are also rooted in the cultural expectations of the student's family and community. Teaching skills in this area require educators to help students understand their own expectations, the expectations of their families and communities, and the expectations of people in other environments (e.g., employers). From this understanding, students can be taught to make informed choices (Hanley-Maxwell & Collet-Klingenberg, 1997).

Social skills. The effective performance of social skills is critical to the lives of all people. Successful individuals can cooperate, negotiate conflict, take the perspective of others, and work as a member of a team (U.S. Department of Labor, 1991). Social skills include the use of appropriate receptive and expressive communication behaviors, the application of problem solving steps to identify appropriate and needed actions, the covert processes of self-efficacy, the overt actions of self-advocacy, and action based on personal values.

Application Skills

Application skills are those specific skills required for effective participation in targeted home, work, postsecondary education and other community environments (Hanley-Maxwell & Collet-Klingenberg, 1997). They are based on the fundamental and integrative skills and include the academic and specific technical skills required for targeted jobs or further academic training (Brolin, 1983; Brown et al., 1979; Elrod, 1987; Rusch et al., 1982; Udvari-Solner, Jorgensen, & Courchane, 1992; Wehman, 1992; Wehman, Wood, Everson, Goodwyn, & Conley, 1988; Wircenski, 1992).

Current curricular practices emphasize application at the secondary school level. Although this is appropriate for most students, educators must be sure that the individual student has already learned and can perform fundamental and integrative skills. If the student has not acquired skills in these basic areas, careful consideration must be given to whether or not to target the missing skills for instruction or

to adapt or accommodate for these missing skills. Without the skills in the foundational and integrative areas, or without adaptation to accommodate missing skills, students and their families will be left with inflexible plans and trapped in predetermined adult roles that do not meet their continually changing needs (Hanley-Maxwell & Collet-Klingenberg, 1997). Finally, it is important to remember that employment during the high school years has been consistently shown to be related to positive postschool outcomes. Thus, application skills related to real work must be part of any secondary curriculum and must be conducted in real work settings.

Assessment and Categorical Eligibility

Transition planning can be thought of as an organizing structure that helps determine what is relevant to and provides direction for an individual student's life. This planning must reflect the fact that the direction of the student's life keeps changing as the student continues to develop. Transition planning can be used to determine what needs to be done to achieve the goals of the student and his or her family. If transition is considered within this context, the role that assessment plays and the assessment process itself are critical aspects of the overall planning process.

Assessment is the process of gathering information to make decisions such as classification, eligibility determination, program planning, student progress, and adaptation and accommodation needs (Pancsofar, 1986; Parker, Szymanski, & Hanley-Maxwell, 1989). Since all students who receive special education services are eligible for and must receive transitional services, categorical student classification is irrelevant to eligibility for transition services. Disability classification for postschool services, however, may be part of the eligibility requirements. The specifics of this requirement are often negotiable points that are addressed in interagency agreements (Hanley-Maxwell & Collet-Klingenberg, 1995). The Iowa Division of Vocational Rehabilitation Services (DVRS) policies currently state that a disability label is needed for eligibility determination. However, in some cases, a disability label is not placed in the case file until case closure or transfer. Eligibility requirements for long term support through the counties or the Division of Human Services (DHS) are noncategorical. To be found eligible for these services, an individual must have an IQ below 74 and must have been diagnosed with a developmental or mental health disability prior to age 21. More often than not, assessment focusing on three content areas identified above (i.e., foundational skills, integrative skills, and application skills) will provide more functional information than category or type of disability. Assessment of skills in these areas will provide more specific information related to the transition needs and services of individual students. Additionally, postschool evaluation in these areas could provide feedback regarding program effectiveness and evaluation of transition services.

When deciding what additional assessment needs to be done as part of the transition planning and intervention processes, consideration must be given to: the purpose of the assessment, the content that needs to be addressed, and the mechanics of the assessment process.

Purpose

The purpose of the assessment should take into account what information is being sought, how this information will be used, and whether the information already exists or can be obtained through some other source (e.g., learning history, work experience records). No assessment should take place until these aspects have been addressed.

Content

The content of the assessment will be dictated by the identified purpose(s). For instance, assessment of eligibility for DVRS services requires examination of the individual's skills and needs in seven functional capacities: mobility, work tolerance, work skills, self-direction, self-care, interpersonal skills, and communication (The Rehabilitation Act Amendments of 1992, preamble). It is important to note that these seven functional capacities are found in the curricular organization strategy described above (i.e., foundational, integrative and application skills). Often specific content for assessment of the individual student cannot be developed until preliminary observations or interviews have been conducted in targeted settings and existing information has been examined. Possible content may also be derived from some commercially available life skill measures. But care must be taken to ensure that content selected is individualized and relevant to the life of the students (Hanley-Maxwell & Collet-Klingenberg, 1995).

Assessment for transition is broader than assessment of the individual students. It is based on an ecological model in which the individual, targeted settings, and support systems are assessed. When planning for assessment, current and future informational needs have to be considered. The first consideration is: Are outcomes projected for this child that are based on parental/familial and child interests, needs and preferences? These outcomes should be in the areas of work, home, community, and social relationships or described in the context of various adult roles (e.g., worker, family member, community member, consumer, postsecondary student, friend). The answer to this question

will identify the potential settings that need to be examined.

The next consideration is: Do you know what the skill needs are in relation to each of these outcomes? Settings are assessed to determine needed social, task, and task- related skills. Natural support and training systems, both formal and informal, are also identified in targeted settings (Hanley-Maxwell & Collet-Klingenberg, 1995).

Individual student assessment focuses on the process of functional assessment and includes: support or accommodation needs; problem solving, self-determination (e.g., self-efficacy and self-advocacy skills); social skills; specific skills related to identified tasks (functional skills); interests; future goals and aspirations; and likes and dislikes (Hanley-Maxwell & Collet-Klingenberg, 1995). This information should include answers to several questions. First, has this student had sufficient experiences from which to make outcome decisions? If not, then plans should be developed to ensure access to a variety of experiences and reassessment should be conducted after the completion of these experiences. What are the student's current skill levels in relation to skills needed for potential outcomes? The answer to this question will be used to: inform the content of the IEP and instructional programs, develop adaptations, and revise long-term goals. What are current support needs and what is the anticipated degree of independence and potential support needs of this student in the future? What are current financial and transportation resources? What are the probable financial and transportation needs for this student in the future? Answers to these questions will assist in the development of long term plans, arrangement of future supports, and identification of needed future services.

Support system assessment examines current and potentially available supports in relation to what role these systems can and should play, what gaps exist between support needs and supports available, and the needs of the support system(s) (e.g., friends, family, potential future relationships, adult service providers). Care must be given to respond to the interests, needs, and preferences of the student as possible support systems are considered (Hanley-Maxwell & Collet-Klingenberg, 1997). Assessment in this area will include the identification of: currently available support and services needed to assist the student in achieving and maintaining the desired outcomes, services or supports which are currently unavailable but needed by this student to achieve and maintain desired outcomes, and potentially available alternatives (formal and informal) for meeting the service and support needs of this student both now and in the future. One support system issue that must be considered in Iowa is how to access and pay for long term support services, when needed. If individuals or their families expect public funds to pay for long term supports (available through county services), they must meet economic criteria and follow county of legal residence guidelines. Assessment of support system needs in this area would be helping the families determine if they meet county of legal residence guidelines (must live in a county for one year without support services for county obligation) or DHS requirements, and if they meet the established economic criteria.

Mechanics

The mechanics of the assessment processes also include the identification of where, when and how the assessment(s) should take place. The purpose and content of the assessment usually dictate the location for assessment. When considering assessment of the student, assessment in the actual setting of performance is recommended. How assessment(s) should be done includes consideration of procedures and materials. Assessment methods include many activities such as observations, interviews, self-reports, review of documents and reports, and formal evaluation systems. Regardless of the activity chosen, it is important to remember to be as unobtrusive and natural as possible because the act of assessment changes individuals and settings. Additionally, careful consideration should be given to who should or can conduct the assessment. Students, families, employers, coworkers, educators, support personnel, and adult service providers can be part of the assessment design and implementation process. In fact, current practice recommendations are emphasizing self-assessment, informal assessment by individuals in targeted settings, and collaboratively designed assessment practices. Assessments should usually be conducted at the most natural time and day(s) of the week for the performance of skills in the targeted areas. Good assessment generally requires more than one moment in time. Finally, assessment for planning purposes should be conducted early in the planning process and repeated as necessary throughout the remaining school years (Hanley-Maxwell & Collet-Klingenberg, 1995; Pancsofar, 1986; Szymanski, Hanley-Maxwell, & Parker, 1990). Assessment that is not conducted at the appropriate time or at a single moment in time produces less usable information. Attention to the practices identified above usually assure that all assessment of the individual and his or her needs becomes functional, and thus more usable assessment.

Work Activities/Experiences

Work experiences during the school years have been repeatedly identified as critical elements of successful transition programs (Phelps & Hanley-Maxwell, 1997). As such, it is important to provide high quality experiences. These experiences: (a) assist students in getting first jobs; (b) provide the settings for learning and applying work related skills that transcend all jobs (e.g., problem solving, independent work skills); (c) provide experiences that help students identify interests, strengths and adaptation needs; provide an applied setting for the development of self-directed planning skills; (d) provide the natural settings for learning job search and getting skills; (e) provide settings that ensure the integration and application of previously or concurrently learned skills; (f) develop work histories; make contacts that will help in future job getting efforts; and (g) teach students how to organize and respond to natural supports. Job placement should never be the sole goal for a good work-experience program.

Work experiences should be started as early as possible. They may start with the in-class, at-home, and in-school jobs that children typically have. Volunteer experiences should be encouraged, especially during the middle school years when students may not be eligible for "real" jobs. Structured job experiences in the community should be started no later than age 16, and at age 14 when possible and desired by the student and the family (Hanley-Maxwell & Collet-Klingenberg, 1997).

Each student should have an individualized job experience sequence. This sequence should start with orienting students to the world of work, job seeking and job selecting, and should culminate in the student self-selecting the first postschool job or developing a plan to obtain the skills needed for a targeted occupational outcome. Students, families and educators should systematically use high school jobs to inform subsequent experiences and refine long term plans. Development of the individualized job experience sequence should reflect consideration of the student's age and work history. The older the student is when he or she enters the work experience sequence, the more critical it is to direct attention to the skills needed to be successful in all jobs and the skills needed to obtain the first job. In addition, special attention should be given to connecting the student with postschool employment and education programs to learn more about job search and job getting strategies and to acquire more job related skills (Hanley-Maxwell & Collet-Klingenberg, 1997).

Past work history also influences the job experience ıce. For instance, 14-year-old students with little job ence should be encouraged to explore several areas of interest across the course of the school year. Goals of these students would include learning work-related behaviors and using job experiences to hone interests and identify assets. However, a student with extensive job experiences in various arenas may have decided on a field of interest. Job experiences for this student should focus on that field of interest and long-range planning should be conducted to assist the student in getting postschool education or employment in the interest area (Hanley-Maxwell & Collet-Klingenberg, 1997).

Planning and Connections

To successfully engage in and maintain adult roles, many students need support services that extend into their adult years. These services range from access to note-takers in college classes to assistance in accomplishing daily self-care tasks. These ongoing services are provided by a variety of individuals in many different agencies. Tutors in disabled students' services on college and university campuses, case coordinators for mental health services, supported employment job coaches, rehabilitation counselors, community college transition coordinators, and independent living specialists are just a few of the individuals who provide assistance to adults with disabilities. Determining what services an individual student will need and connecting the individual to the agencies that provide those services is part of the transition planning process. While this process could appear to be very straightforward and procedural, the reality is that the complexity of the adult services world makes negotiation of these services difficult and time consuming. Service providers that target adults are directed by different legal mandates than educational systems. These mandates result in differences regarding eligibility requirements, type and extent of services provided, and terminology used. Because of the complexity of this topic, this section is broken into three major parts. Systems issues involved in planning and connecting are addressed in the first part. In the second part, interagency agreements are discussed briefly. The final section is a discussion of the quality aspects of the planning and connecting process.

Systems Issues

One of the most prominent differences between educational and adult services revolves around the issue of entitlement. Through constitutional and legislative actions, all children with disabilities are entitled to receive a free and appropriate public education. All children who meet eligibility requirements are entitled to supplemental (special) education services to ensure that they benefit from their education. Financial resources of the school district

cannot be a consideration when determining whether or not the child will receive needed special education services. This system of entitlement ceases when the child leaves the public school system as a result of graduation or age-related completion. The services provided to adults do not operate on an entitlement basis. If an adult is to receive services, he or she must be determined eligible for those services. Then, if other weighting criteria are met (e.g., severity of disability, potential to benefit from services provided), and the provider has enough funding or an opening to serve that individual, he or she will begin to receive services. However, if there are no openings, or funding is otherwise limited, the individual will be placed on a waiting list and informed that services are currently not available, despite eligibility.

In addition to being different from school services, adult service agencies vary among themselves. Because of this, it is critical to ensure that representatives of each relevant agency are involved in transition planning. These representatives can help parents, students, and educators determine if the student meets eligibility requirements, access the services for which he or she is eligible, and identify skills needed to survive in the adult world.

For most students with disabilities, the pivotal people in the transition process are special educators and rehabilitation counselors. In recognition of this fact, federal laws specifically define transition as it relates to the services of these professions. In addition, federal law mandates cooperation between these two service systems. Thus, it is imperative that educators understand rehabilitation counseling, and more specifically DVRS.

Rehabilitation counseling. As previously indicated, with the enactment of IDEA, rehabilitation counseling became a related service which can be purchased or provided by school districts (Hanley-Maxwell et al., 1997). Szymanski and King (1989) identify a variety of roles that rehabilitation counselors can play in the transition process. These include:

> (a) career and psychosocial counseling; (b) consultation with special and vocational education teachers, school counselors, and other education professionals regarding the vocational implications of disability and potential educational adaptations; (c) coordination of school, family, and community efforts in career planning and preparation; (d) job placement, job analysis, job modification and restructuring, and placement follow-up; (e) work adjustment counseling; (f) coordination of job support services (e.g., job coaches, transportation, personal care attendants) during transition; (g) referral to and coordination with adult service agencies [e.g., state VR agencies]; (h) specialized planning and linkage with postsecondary programs and support services for students with disabilities; and (i) development of individual transition plans. (pp. 4-5)

The rehabilitation counselor's role varies with the age of the person being served. With young children, this role could include career development counseling to parents and consultation with teachers to develop work-related skills and attitudes and exposure of children to occupational information. For secondary age students, the role would change and focus on providing vocational assessment, career counseling to students and their families, collaborating in curriculum development, assisting in community-based work programs, and identifying potential jobs, residential sites, funding sources and support services. However, the reality is that most districts do not have the financial resources to hire their own rehabilitation counselor. Thus, they have to depend on DVRS (or in some cases the transition coordinator from the Area Education Agency or guidance teacher) for the services required by federal law and must begin the connection to these services, when needed, no later than age 16 (Hanley-Maxwell et al., 1997; IDEA, 1997). School districts are encouraged to establish the primary linkage with DVRS during the student's sophomore or junior year.

DVRS. To be eligible for DVRS services, a student must have a physical or mental impairment that results in a substantial employment impediment (Mandeville & Brabham, 1992). The individual must require DVRS services in order to become employed. When a student meets these criteria, DVRS presumes the student can benefit from vocational rehabilitation services, no matter how severe the student's disability. It is important to note that all students who receive special education services may not be eligible for DVRS services, ***and*** all school age individuals eligible to receive DVRS services may not be receiving special education services. There are differences in what poses an educational disability as opposed to what causes an impediment to employment (Hanley-Maxwell et al., 1997).

Because of limited financial resources DVRS cannot serve all eligible persons. Thus, the process of "order of selection" is used to determine which eligible people will actually receive services. The current priority for DVRS is to first serve those persons with the most severe needs. Thus, once an individual is determined to be eligible, the counselor will review the person's functional limitations to determine if the functional limitations are severe enough to receive services. The individual will then be placed on a waiting list and will be informed of that status. The resources of the agency will be reviewed periodically to determine if an individual can be taken off the waiting list.

Interagency Agreements

The planning and connecting processes of transition take place at many levels. At the systems level, interagency agreements formalize the connections between and among various service providers. Interagency agreements should be developed to articulate what services each agency will provide in the transition process. Often procedures related to information sharing, financial responsibility, connecting activities, and eligibility requirements are spelled out in these agreements. The presence of these agreements is intended to provide clarity to what each agency can expect from other agencies, reduce duplication of services, and address service gaps (Phelps & Hanley-Maxwell, 1997). Wehman, Moon, Everson, Wood, and Barcus (1988) developed a content checklist for interagency agreements. In general, interagency agreements should include, but not be limited to: (a) definitions of terms; (b) roles and responsibilities of participating agencies; (c) requirements and procedures related to eligibility and referral; (d) legal issues and procedures related to confidentiality, information sharing, and participation in planning meeting (especially IEP meetings); (e) scope and limitations of services; and (f) items related to the agreement process itself (Wehman, Moon, et al.).

Quality Aspects

Planning with each individual student is at the heart of transition practices. The timing, content, and processes of planning are critical in assisting students to make needed connections and get necessary experiences. Each of these aspects is discussed below.

Timing. Federal law is specific in relation to timing requirements and provides general guidelines to the content. As stated earlier, IDEA requires transition planning to "[begin] at age 14 . . . [to focus] on the child's courses of study . . . and . . . at age 16 (or younger, if determined appropriate by the IEP Team), [to identify] needed transition services . . . (Individuals with Disabilities Education Act, 1997, Sec. 614 [d][1])." In general, transition planning should start three to five years prior to the student's school leaving (Wehman, Moon, et al., 1988).

Content. Federal law requires that the IEP that addresses transition include a statement of needed transition services and, when appropriate, a statement of the interagency responsibilities or linkages (or both) before the student leaves the school setting. As part of the IEP process, transition planning becomes increasingly specific as point of departure nears. The IEP should also become increasingly connected to the Individual Written Rehabilitation Plan (IWRP) that is used in DVRS planning and service delivery. The content of this part of the planning document would include: (a) annual goals/short term objectives; (b) specific services and any necessary referral steps; (c) staff and agency responsibilities; (d) specific job placement, postsecondary education, and residential plans; and (e) specific follow-up services and procedures.

Unfortunately, current analyses, particularly those related to the NLTS data, have yet to confirm a relationship between positive postschool outcomes and formal transition planning within the context of the IEP. However, research has consistently shown that when plans, especially IEPs, are developed collaboratively, they are more likely to be carried out (Phelps & Hanley-Maxwell, 1997). This follow-through becomes critical when considering that transition planning involves many different agencies.

The problems presented in coordinated planning are acknowledged in federal law. IDEA provides a safety net to students who may be "lost" because of an agency's failure to follow-through on plans developed in the IEP. The law states:

> If a participating agency, other than the local educational agency, fails to provide the transition services described in the IEP in accordance with paragraph (1)(A)(vii), the local educational agency shall reconvene the IEP Team to identify alternative strategies to meet the transition objectives for the child set out in that program. (Individuals with Disabilities Education Act, 1997, Sec. 614 [d][5])

The process of transition planning must be carefully developed. Particular attention should be given to who attends the planning meeting, what roles they play and what the critical planning components are. These topics are discussed in the next section.

Process. The first aspect of the transition planning process that needs to be addressed is: who should participate? In general, participants may include: members of multiple disciplines and service delivery systems (e.g., special education teachers, vocational education teachers, rehabilitation counselors, adult service agency representatives (vocational and residential), mental health counselors/case managers, child welfare or court appointed social workers, parents /guardians /advocates /attorneys, the students, possibly employers or business community representatives) (Everson & Moon, 1986; Hanley-Maxwell & Chadsey-Rusch, 1986). Currently, recommended practices emphasize the individualization of the planning team. Moreover, as stated earlier, federal law requires that school personnel invite other agencies to IEP meetings if those agencies are likely to be responsible for providing or paying for transition services. If those agency representatives

cannot or will not attend IEP meetings, then school personnel must obtain their input through other means and incorporate this input in the IEP meeting (Individuals with Disabilities Education Act, 1997).

Transition planning has many levels and should vary according to the needs of the individual. In general, the process includes the formation of the "transition team" for each student, the initial planning meeting (as part of the IEP), the implementation of the plan throughout the school year, and annual revision/update of the transition plan (Wehman, Moon, et al., 1988). The planning formats selected will vary with the needs and desires of the individual planning team. However, there are critical components that should be present in all planning processes.

First, the transition planning process should be grounded in the Criterion of Ultimate Functioning. That means that interventions must be designed to prepare an individual "to function as productively and independently as possible in socially, vocationally, and domestically integrated adult community environments (Brown et al., 1980, p. 6). Furthermore, as indicated above, the transition plan should identify services needed (e.g., supported employment, supported living, interpreting service) and prospective service provision agencies (e.g., DVRS, adult services agency, residential agency, college or technical school office) necessary to enable the individual to achieve the criterion of ultimate functioning (Wehman, Moon, et al., 1988). This means that relevant information needs to be shared. School personnel can help non-school agencies as they participate in the planning process by sharing appropriate information with them. This information includes: family information (e.g., legal guardian, type and extent of family contacts, residential status), student school experiences (e.g., history and description of vocational and community experiences, IEP progress, descriptions of adaptations and accommodations), and student specific information (e.g., learning styles, transportation needs, support needs, financial issues, behavior, work endurance/stamina, interaction style, skills - academic, communication, social, mobility/orientation, fine and gross motor). Any information shared between agencies must be directly relevant to program or service planning, and procedures to ensure confidentiality must be followed.

Next, the planning process should involve the student and family as integral members of the planning team (Szymanski et al., 1990) and take into consideration the student's preferences and interests (Individuals with Disabilities Education Act, 1990). Students and parents need to be active and important members of the multidisciplinary team (Ford et al., 1989; Schnorr, Ford, Savern, Park-Lee, & Meyer, 1989; Wehman, Moon, et al., 1988). For students, "[a]dolescence is a critical period for the development of skills related to self-determination" (Wehmeyer, 1994, p. 308). It is a time to develop realistic expectations through identifying physical and psychological needs, planning how to meet these needs, gathering necessary resources, and creating the actions required to meet those needs (Wehmeyer). Thus, transition services during this period should focus on the student's progressively taking control over his/her current and future life (Michaels, 1994). The IEP process is a tool that can help the student learn to perform the planning, self-advocacy, and responsibility skills necessary for self-directed planning. Strategies that enhance family and individual control over the planning process include: McGill Action Planning System, Forest & Lusthaus, 1987; Lifestyles Planning Process, O'Brien & Lyle, 1987; Personal Futures Planning, O'Brien, 1987; the family-centered approach to early intervention, Dunst, Trivette, & Deal, 1988; and Choosing Options and Accommodations for Children or COACH, Giangreco, Cloninger, & Iverson, 1993. However, care must be taken to remember that these approaches to planning are processes and not the meetings themselves (Mount, 1994). Extra caution should be exercised in ensuring that students provide as much input as possible to the process. The process may be too intimidating for the student to provide his or her input during the meeting. In this case, alternative strategies must be used to engage the student and solicit his or her input, e.g., pre-meeting interviewing with the student, asking the student to list his/her interests, needs, and preferences (Hagner, Helm, & Butterworth., 1996). Finally, it is important that the planning process take into account the fact that family members and professionals will have different perspectives in relation to goals and success criteria (Szymanski et al., 1990).

Lastly, it is important that any planning enhances the future flexibility of students and their families. Research has raised questions about the ability of 17 and 18-year-old students to make career choices that they will stay with after leaving school (Shapiro & Lentz, 1991). Because career choices are tentative at best, students and their families must be provided with the skills that will allow them to make knowledgeable choices, follow through on the choices selected, and revise their plans when necessary. "If an individual has the skills and the opportunities to make decisions from a very young age, what becomes important is involvement in the planning process - not what career choices are actually made upon leaving high school" (Hanley-Maxwell & Collet-Klingenberg, 1997).

Summary

Transition from school to adult life is a difficult time for students and their families. Current research indicates the process is full of problems that can dramatically influence the success of the individual in his or her adult life. This chapter provided the foundation for understanding the complexity of the transition process from multiple levels, a framework from which to consider critical outcomes, the current status of former special education students, and factors that appear to be correlated with outcomes. The critical roles that work experience plays in the life of adolescents were also discussed in conjunction with curricular, assessment, and planning/connecting practices that may enhance future successes for students. The most important aspect of transition planning is always to remember that it must be a completely individualized process that is ultimately controlled by the student and his or her family. Professionals need to learn to inform, nurture, and support the attainment of goals that students and their families have set for the future.

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Services To Young Children

Functional/Behavioral Conceptions of Services to Young Children

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Chapter 7

INTRODUCTION

Children change dramatically from birth and through the preschool years — more rapidly than they will during any other period of their lives. The early childhood period is widely recognized as both unique and important. Rapid rates of development, young children's lack of life experiences, their attendant limited repertoire of skills for self-care and communication, and their dependence on family members or other caretakers serve to make this period unique. Strong evidence that early experiences influence later development and learning make this period important.

Not surprisingly, delivery of services, including early intervention services to infants and toddlers and early childhood special education services to preschoolers (all children younger than those typically considered school-aged) is, and always has been, different than delivery of special education services to older children. The services themselves are often quite different because of the nature of the population being served, and the different historical underpinnings of the service delivery system/s. These differences in the service delivery system are not a small matter as they are integrally related to access to services, identification of children to receive services, and service design. These differences present conceptually similar yet practically different problems for the identification of children of various ages who need specialized services.

The purpose of this chapter is to provide an overview of the service delivery system for young children, focusing specifically on how special education services fit within the overall system. Next, problems with adapting the traditional special education system of categorical disability classification for the purpose of identifying young children to receive services will be highlighted. Finally, considerations for and approaches to assessment with this population will be discussed.

SERVICE DELIVERY SYSTEM ISSUES

Universal services for young children do not exist across the United States. Services of various types are available in a limited number of locations. For example, the Parents as Teachers (PAT) program is operated by every school district in Missouri and offered to all families who choose participation. Some states (e.g., Hawaii and Minnesota) have instituted statewide programs aimed at making health care services accessible to all children. However, responsibility for the health and well-being, caretaking, and education of young children is largely held to be the responsibility, as well as the right, of their families (Kagan, 1994).

It would be naïve to claim that no services exist for young children. However, these services are generally provided either when it has been determined that some need warrants specialized services or when parents pay for services. For example, Head Start provides child development services to families deemed eligible because their income falls below a designated level. Similarly, early intervention and/or early childhood special education services are available when a child has an identified disability condition or a qualifying developmental concern. However, eligibility determination differs from one type of service to another, as well as from state to state even within a particular type of service. By contrast, a myriad of child development and family support services are available, in the private sector, to families able and willing to expend resources as fees for services.

Historical Underpinnings of Early Childhood Special Education Services

Services to young children, particularly those at risk for poor developmental outcomes, have roots in many disciplines or movements including early childhood education, maternal and child health services, special education, and child development research (Shonkoff & Meisels, 1990). As a whole, early childhood services have been influenced further by forces shaping all of American society, most significantly demographic variables such as ever grow-

ing percentages of young children living in poverty and/or having mothers in the work force.

These forces have shaped services for young children in a variety of ways. Child development research has provided strong evidence that the ultimate outcome for any individual is a product of interaction between the nature of that individual and the nurturance provided by his/her environment (Sameroff & Chandler, 1975). This evidence has contributed to recognition that early experiences lay an important foundation for later development and future learning opportunities.

This perspective that the early childhood years are a unique period of life has contributed to establishing services aimed at enhancing developmental outcomes and/or providing care and protection to young children. Head Start, which grew largely out of the remedial education movement, is an example of one such program for children considered to be at risk for educational failure (Zigler & Valentine, 1979). Special education services for school-aged children with disabilities has also strongly influenced provision of services for children with disabilities during the preschool period, with particular emphasis on the notion that intervention provided earlier may serve as a preventative influence enhancing developmental outcomes and perhaps reducing or eliminating the need for specialized services during the school years (Bailey & Wolery, 1992; Peterson, 1987).

While not specifically developed as a program for children at developmental risk, recognition of the need for and support of child care services has grown tremendously during the last few decades. During all but a few years since the mid-1980s, at least 50% of women with children below age six have been employed outside their homes; within many groups, such as families headed by single mothers, the percentages are as high as 70% (Cohen, 1996). During 1995, sixty percent of children between birth and age five received regular care from someone other than their parents and/or participated in an early childhood education program. Despite these trends, public finance for child care services has not been consistent (Cohen, 1996) and quality of services remains variable (Hofferth, 1996). However, since such large numbers of children currently participate, these programs play an important role in both assisting with identification of children needing specialized services, and in some cases, serving as the site for delivery of those services.

The field of maternal and child health can trace a long history of influence on services for young children with [illegible]lities. Establishment of the Children's Bureau in 1912 [illegible]n cited as the first acknowledgment that the federal government had any responsibility for promoting the health and welfare of the nation's children (Guralnick, 1997; Lesser, 1985), and beginning in 1930, this Bureau facilitated state receipt of federal funding to develop programs for crippled children (Shonkoff & Meisels, 1990). Other contributions made by the field of maternal and child health include its influence on securing Social Security funding for services for children with disabilities and beginning the Early and Periodic Screening Diagnosis and Treatment (EPSDT) Program (Shonkoff & Meisels, 1990).

Shaping a field via this diversity of influences is positive in that it promotes inclusion of a variety of perspectives and potential development of a broad base of support. However, this diversity has also engendered arguments and schisms along a variety of program elements, as basic as establishment of program goals and intervention methods (Clarke & Clarke, 1976; Anastasiow & Mansgergh, 1975), selection of service providers (Bricker & Slentz, 1988) and identification of service recipients (Meisels & Wasik, 1990).

Early Childhood Special Education Today

These various influences continue to be evident today. Services for young children are provided under the auspices of a variety of programs administered by different agencies and funded by numerous sources. These facts have implications for how children (and/or their families) are identified as needing services, reporting to funding agencies, and the designation and delivery of services. All this makes it not only desirable, as for children of any age, but necessary to coordinate services across agency and administrative lines.

Special education services are delivered to preschool-aged children as a part of two closely related, yet distinct systems; two different terms are frequently used to describe these services. ***Early intervention*** is the term most commonly used to describe services provided for children, from birth through age two, who have disabilities; across states, these services are administered by different agencies. Early intervention services were undertaken with a preventative perspective with the hope that providing services early would make it less likely that specialized services would be needed during the school years and beyond. This perspective was stated explicitly in The Education for All Handicapped Children Act Amendments of 1986 (P.L. 99-457, Part H), which first established early intervention services for children between birth and age three and described four purposes for early intervention services: (1) to enhance the development of handicapped infants and toddlers and minimize their potential for developmental delay, (2) to reduce the educational costs to our society by minimizing

the need for special education and related services at school age, (3) to minimize the likelihood of institutionalization of handicapped individuals, and (4) to enhance the capacity of families to meet the special needs of their infants and toddlers with handicaps (P.L. 99-457, 1986, Sec. 671). Special education services are intended to be one part of a comprehensive early intervention service system for infants and toddlers with disabilities and their families.

Early childhood special education is the term most commonly used to describe special education services provided for children between the ages of three and six. These services are administered by each state's education department, and children and families are to be transitioned from early intervention services into special education services, if they are needed, when the child reaches age three.

Early intervention services. The early intervention system that serves the population of young children from birth through two years of age was purposely designed to be multidisciplinary, highlighting the notion that quality services for very young children require collaboration among professionals representing several disciplines. P.L. 99-457 (Part H), which facilitated development of early intervention services, differs from other pieces of special education legislation in a number of ways. It provided states a great deal of discretion, including the option to choose whether or not to participate in Part H services, but it also mandated a number of things for participating states. All states have chosen to participate, and currently no states have chosen to discontinue participation.

First, each state was required to select a lead agency to administer its early intervention service system. This represented an attempt to assist states plan for and develop a coordinated, comprehensive early intervention service system. Approximately half the states did choose the education department to lead their state's early intervention system (as did Iowa), but many states chose other agencies, most often the departments of health or social services. This legislation also mandated collaboration between service agencies by requiring that a statewide Interagency Coordinating Council (ICC) be developed to oversee early intervention planning activities and services (Shonkoff & Meisels, 1990). These differences relate primarily to administration of services; other differences relate to service delivery in a more direct way.

States are required to provide early intervention services for children experiencing developmental delay/s and for those who have a diagnosed condition likely to result in a subsequent delay. This language already separates this legislation from earlier special education legislation by making it possible to provide early intervention services (which usually include special education services) not only when a child is identified as having a disability but when it is anticipated that a child is likely to experience a developmental delay at some point in the future. Differentiating it even further, Part H also first made it possible for states to serve children "at-risk of having substantial developmental delays if early intervention services are not provided," (Section 672). In reality, difficulties with identifying this population of children "at risk" and potential financial constraints associated with delivery of these services have acted as a deterrent to states actually providing early intervention services to a broad population of children at-risk. Addressing the needs of this at risk population remains one of the great challenges facing the field of early childhood education, as well as our society as a whole.

Another major difference between P.L. 99-457 and earlier pieces of special education legislation is explicit acknowledgment of the family, rather than the individual child, as the focus of service. This has been described as a logical extension of the parental involvement mandated by The Education for All Handicapped Children Act (1975, P.L. 94-142) (Shonkoff & Meisels, 1990). It also has roots in earlier legislative initiatives, most notably those establishing Head Start, which is generally regarded as the earliest official recognition that families as a whole could be seen as legitimate recipients of services intended to enhance child outcomes (Turnbull & Winton, 1984). This acknowledgment also reflects that services traditionally have been provided to young children via their families, and appears to reinforce the family-oriented approach recognized as state of the art in delivering services to young children (Healy, Keesee, & Smith, 1985; Dunst, 1985). This acknowledgment is played out programmatically by requiring development and implementation of an Individualized Family Service Plan (IFSP) rather than the Individualized Education Plan (IEP) required with all other special education services. Once again, this has implications for identification of service recipients, as well as for assessment that can guide service delivery.

Early childhood special education services. Children between three and six years of age who are identified as needing early childhood special education services participate in services more like those provided to children of school age, but important differences remain during these years. Administrative arrangements, in terms of funding sources and program supervision, are made by an educational agency, and instructional programming is guided by an IEP that is most frequently implemented and monitored by an early childhood special educator. However, where and how early childhood special education services are

delivered can differ significantly from how special education services are delivered to school-aged children.

Since children under age five do not typically attend public schools, identifying a child as being in need of special education services may be synonymous with the school district being able to provide ***any*** educational services to that child. This same fact makes it almost impossible for these children to participate in activities with typically developing, same-aged peers within the public school setting, and increases the likelihood that early childhood special education services will be provided in self-contained, segregated classrooms. As a result, schools find it challenging to meet the "least restrictive environment" requirements of special education legislation, and schools around the country are collaborating with community agencies to utilize or create opportunities for young children to receive special education services in inclusive settings. For example, Head Start programs are required to enroll (at a minimum 10% of their enrollment) children with special needs. Children entitled to special education services invariably meet the criteria for Head Start's definition of children with special needs. State-level agreements often guide collaborative delivery of special education services under arrangements with Head Start programs. In many communities, early childhood special education services are being delivered within child care settings that may or may not be located on public school premises, and many communities are enrolling typically developing preschoolers in programs physically located within the same classrooms that house programs designed to provide early childhood special education services.

ISSUES AND PROBLEMS WITH TRADITIONAL CATEGORICAL SPECIAL EDUCATION DESIGNATIONS

Characteristics of young children, as well as unique features of services for this population, present some practical challenges for identifying children who should receive special education services, as well as for planning effective services. Conceptually, the challenges faced by professionals working with this population are not dramatically different from the challenges faced by professionals charged with making similar types of decisions regarding school-aged children. However, lack of universal services for young children and a fragmented service delivery system make even finding young children with developmental concerns an issue, let alone providing services that can enhance out-. In addition, issues related to the system of categori-eling traditionally utilized for identification of need for special education services and the nature of young children make assessment of this population a challenging endeavor.

It is important to identify children of any age who need specialized services and plan those services to address intervention goals effectively and efficiently. Traditionally, special education services have been provided when it is determined that a child meets the eligibility criteria for a specific disability condition, and as a result of this disability, needs individualized instruction. Usually, children are identified as needing special education services if they are diagnosed as having one of 13 different disability conditions specified in federal law (Individuals with Disabilities Education Act [IDEA], 1997). However, there is little evidence that this categorical classification system has guided delivery of special education services effectively. Reschly (1996) highlighted problems with the current system that include stigma to the child, poor reliability for traditional categories, low levels of relationship between categorization and treatment decisions, obsolete assumptions that continue to guide interventions, and disproportionate representation of minority students among those receiving special education services. These issues are relevant for all children potentially needing specialized services; however, some of these issues are magnified with the preschool population.

Definitional Problems with Disability Categories

Poor reliability for traditional disability categories, due to both the nature of the actual definitions used and lack of definitional clarity, is especially problematic when considering young children. Precise definitions for a variety of disability conditions, that can be used to diagnose children's learning problems accurately, have eluded educators and support service personnel since the inception of special education services. Thirteen disability categories specified in federal IDEA regulations have been used to identify children as eligible for special education services. However, since clear definitions for these disability categories are not provided in federal regulations, different definitions are used in different states. Thus, any individual child may or may not be identified as needing special education services depending on where he/she lives. For preschool-aged children, this could mean that when a child moves from one state to another, he/she may simply lose all educational services.

An additional concern with young children is that definitions used for disability categories are frequently altogether inappropriate when applied to the population of very young children. Let's consider one example. The defini-

tion for mental retardation approved by the American Association on Mental Retardation (AAMR) (Luckasson, et al., 1992) states

> Mental retardation refers to substantial limitations in present functioning. It is characterized by significantly subaverage intellectual functioning, existing concurrently with related limitations in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. Mental retardation manifests before age 18.

The definition continues to describe assumptions underlying its application, including the assumption that determination of mental retardation would involve use of valid assessments, consideration of community contexts, and consideration of supports available to the individual.

Even limited consideration makes it apparent that this definition is difficult to apply to young children. First, *all* young children, almost by their very definition and nature, have limited skills. They have not yet developed the physical and cognitive capacity to perform a variety of tasks. Furthermore, they are generally not expected to perform a wide range of functional life skills such as self-care or community use skills independently, and the expectations that they do so are extremely variable as a function of family, cultural group, and geographic location. In addition, young children often have had limited and idiosyncratic group experiences, decreasing the likelihood they will have had similar opportunities to learn specific types of skills such as school-related and group participation behaviors. Given this, it is not surprising that development of valid and reliable assessment procedures to use with this population continues to present challenges.

Consideration of the category of specific learning disabilities presents a similar dilemma when applied to young children. The term learning disabilities has long been associated with poor academic performance (Haring, et al., 1992), and most states have established a process for identifying a child as having a learning disability based on discrepancy between the child's age and ability and his/her achievement (Mercer, 1994). Attempting to assess young children's academic achievement makes little sense since they typically have not had opportunities to develop academic skills; furthermore, recommended practices for early childhood programs advocate providing educational opportunities that facilitate overall development rather than focus on formal instruction in academic areas (NAEYC, 1996).

Early signs of language delay (Cantwell & Baker, 1987), presence of a variety of risk factors, and numerous environmental factors (Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987) are correlated with learning disabilities in elementary school. Often children facing these types of risks need services early on and receive specialized services designed to prevent later problems. However, defining and operationalizing concepts like at-risk is difficult (Simeonsson, 1991) and there appears to be little evidence that a, "single instrument or set of procedures that accurately defines preschoolers with learning disabilities . . ." (Haring, et al., 1992, p. 155) is likely to be developed soon. Little relationship exists between a child's identification as having a learning disability and subsequent instructional direction for children of school age. Thus, it is unlikely that identifying a young child as having a learning disability will serve to inform intervention in any meaningful way.

Developmental Delay as an Identification Category for Young Children

Definitional problems have been recognized in the field of early childhood special education for many years (Smith & Schakel, 1986). Federal legislation permits, and professional organizations advocate, use of a noncategorical system for identifying young children's needs for special education services, whereby children could be identified as experiencing a developmental delay rather than be identified as having one of the 13 disability conditions outlined in special education regulations governing delivery of services to school-aged children. A concept paper published by the Division of Early Childhood (DEC) of the Council for Exceptional Children (CEC), provides the following definition for developmental delay

> a condition which represents a significant delay in the process of development. It does not refer to a condition in which a child is slightly or momentarily lagging in development. The presence of a developmental delay is an indication that the process of development is significantly affected and that without special intervention, it is likely that educational performance at school age will be affected (McLean, Smith, McCormick, Schakel, & McEvoy, 1991, p.1).

The Individuals with Disabilities Education Act (1991, P.L. 101-476) allowed states the option of identifying preschoolers as experiencing a developmental delay in order to make them eligible to receive special education services.

The most recent amendments to IDEA (P.L. 105-95) passed in 1997, extend this option to include children up through age eight. This change, strongly advocated by DEC and CEC for several years (CEC, 1995; DEC, 1995), is

based on three assumptions (Kilgo, et al., 1996). The early childhood period, recognized as unique, is typically characterized as extending from birth through 8 years of age (Bredekamp & Copple, 1997). Cautions regarding use of standardized and norm-referenced assessments to identify preschool-aged children as having a disability defined by traditional diagnostic categories (as discussed below) extends to this application with children during their early elementary school years. Third, it is assumed that extending use of the developmental delay category to children in the primary grades would facilitate transition from preschool to school age services, as well as promote broader perspectives on intervention strategies designed to enhance overall development.

Current practices. As of 1994-95, thirty-six states included developmental delay as an eligibility option for children ages three through five (Kilgo, et al., 1996). A 1992 survey revealed that 72% of states used different systems to identify preschool-aged versus school-aged children as eligible for special education services (Snyder, Bailey, & Auer, 1994). However, special education identification systems are not a constant phenomenon. Evidence that this may be even more true for young children than for older children is available from this same survey where education department officials from 18 states indicated that they anticipated changes in the eligibility criteria for preschool children in the near future. This expectation might be attributed to changes in federal special education legislation; recent legislation changes are likely to prompt further changes in eligibility criteria. Yet, it may be that these recent and anticipated changes reflect the state of the art and attendant emerging practices in the field of early childhood special education.

Effects of using developmental delay to determine eligibility. The actual effects that identifying young children as having a developmental delay/s have had on the service system, either administratively or programmatically, are largely unknown. One argument against implementing such a system has been that it would "overidentify" children and significantly increase the numbers who would require services (Smith & Schakel, 1986). Thus far, available evidence does not bear this out. Data reported to Congress in 1994, revealed that across the country, approximately 4.42% of children three through five years of age received early childhood special education services, while among the thirty-six states utilizing the developmentally delayed eligibility category, the average number of children receiving these services was 4.46% (U.S. Department of Education, 1994). Across states, distributions of young children receiving early childhood special education services has remained similar in recent years.

Available evidence also suggests that the traditional system of categorical classification may be "underidentifying" young children needing special services (Marder & Cox, 1991). Overall, the percentage of children identified as needing special education services increases with each year of age through approximately the middle of elementary school. In addition, it appears that children identified during the preschool years are those experiencing more severe levels of disability while children with more mild disabilities are far less likely to be identified before entering elementary school (Marder & Cox, 1991). One can only speculate that these children identified as needing special education services at ages six to nine may have been identified at earlier ages had a different system been in place to guide eligibility determination. The ultimate effects of not having provided early childhood special education services to these children can never be known. Questions regarding whether these children would have experienced different outcomes, have done better in elementary school had they received services earlier in life, or have needed fewer services later are obvious ones that come to mind and warrant consideration.

Some evidence does support the ability of early signs of developmental delay to predict need for specialized services during elementary school differentially (Keogh, Coots, & Bernheimer, 1995). Longitudinal data gathered by these researchers revealed that indicators of cognitive, language, and daily living competency gathered on 87 children at ages three to four years was systematically related to regular and special education placement of these same children at ages nine to ten years.

Given that relatively small percentages of children receive special education services during the early years, it could be argued that any evidence of need could, and perhaps should, serve as a basis for providing these services. However, the potential for problems to be associated with identifying a child as having a disability or experiencing a developmental delay when that is not the case must be recognized. Evidence suggests stigma are associated with being identified as having a disability and that once enrolled, special education services often continue for several years, often without thorough consideration given to whether the services continue to be needed (Allington & McGill-Franzen, 1995). Young children would certainly be vulnerable to these same problems. In addition, being informed their child has a disability is most often a devastating emotional experience for parents, one from which professionals seek to protect parents without solid evidence (McCall, 1988). How receiving this information, when it is false,

would actually affect parent-child interaction probably can never be investigated; one can only suspect that parental expectations might be lowered and the child's future development influenced.

Despite evidence and advocacy efforts to support the practice, Haring et al. (1992) correctly predicted that identifying children as experiencing developmental delays would not quickly become a universal replacement for categorical labeling to administer early childhood special education services. More important, this group warned that developmental delay could become a preschool-specific category ". . . as restrictive and unlikely to facilitate meaningful, individualized services as any existing categorical label. . ." (p. 155). In fact, it does appear that in many states, developmental delay has simply been added as one more categorical label within the existing categorical system, one used most frequently and often exclusively for preschool-aged children (Snyder, Bailey, & Auer, 1994).

Considerations for using developmental delay to make entitlement decisions. In and of itself, using developmental delay status as the basis for young children's eligibility for special education services does not guarantee a more effective system. Decisions regarding whether to expend special education resources should be made in conjunction with decisions regarding how to utilize those resources. Thus, the real challenge remains one of accurately identifying children entitled to special education services via an assessment process that simultaneously provides data that can inform subsequent intervention efforts.

The Iowa Bureau of Special Education (1995) has offered a series of questions to guide the decision-making process when considering a young child's entitlement to special education services. The first set of questions asks multidisciplinary team members to consider the following issues in determining whether or not a child is experiencing a developmental delay that would make him/her eligible for services: (1) Does the child's typical performance level interfere with his/her ability to participate in the daily environment? (2) Is the problem pervasive across different domains, settings, and time? (3) Is the child's performance significantly different from that of typical peers and/or developmentally appropriate age expectations to the extent that the child's ability to acquire educationally relevant skills is significantly limited? and (4) Is the difference in performance a result of cultural influence? A second set of questions is offered to facilitate determination of a child's need for specialized services to address documented delays: (1) Is there a need for additional resources to address the identified problem on an on-going basis? and (2) Is it anticipated that without special education services, available resources will be insufficient to address the problem?

A different set of considerations has been offered to guide the design, implementation, and evaluation of early childhood special education services (Carta, Schwartz, Atwater, & McConnell, 1991). These authors suggest that attention must be given to establishing functional goals that will contribute to the child's successful adaptation across a variety of settings and will facilitate transition/s to future environment/s by utilizing instructional procedures likely to decrease risk for later learning and behavior problems. In addition, they suggest consideration of whether early childhood special education services are judged acceptable by significant individuals including the child's parents, teachers, administrators, and policymakers.

Clearly, both sets of considerations cited above are related directly to the overall assessment process, including what types of information to gather and how the information should be used to determine entitlement to special education services, as well as how assessment information should be used to guide special education programming. Professionals must avoid using assessment strategies only to document the presence and severity of a developmental delay. Rather, they must become adept at using assessment information that will address questions such as those generated by the Iowa Bureau of Special Education (1995). In addition, multidisciplinary team members will need to use assessment information to identify programming goals that will effectively facilitate learning skills needed for successful transitions from early intervention to preschool programs, as well as to the more traditional academic programs of elementary schools and/or to development of functional skills that will enhance the child's participation in a variety of community-based environments.

Conclusions. Federal legislative provisions do not require use of the traditional categorical labeling system when providing special education services to preschool-aged children and providing children these services on the basis of developmental delay is strongly advocated by the field's primary professional organization (McLean, et al., 1991; Kilgo, et al., 1996). Available evidence also suggests that determination of developmental delay status can effectively identify children likely to need services in both the short-term and the long-term (Keogh, et al., 1995). Finally, there is evidence that traditional categorical systems may be "underidentifying" young children experiencing developmental problems (Marder & Cox, 1991) and that using developmental delay status as a basis for entitlement to special education services is not serving to "overidentify" children (U.S. Department of Education, 1994). Thus, it could reasonably be argued that, for young children, determina-

tion of entitlement to special education services could be made best based on developmental status rather than on the basis of traditional categorical diagnoses such as mental retardation, special learning disabilities, etc.

Finding and/or developing strategies to assess the child and family variables that will enable effective program planning remains the important challenge to be met. The considerations offered above argue for involving professionals from a variety of disciplines in gathering relevant data from children directly, as well as from knowledgeable informants including parents, caregivers, and early childhood educators. Still, exactly what to assess and how to gather information in ways that will provide data (1) that are meaningful for planning intervention, (2) that can be collected reliably in a nondiscriminatory manner, and (3) that will be sensitive to the child's and family's culture is more difficult to define.

ASSESSMENT CONSIDERATIONS

It is easier to identify challenges faced in assessing young children than to recommend strategies that accurately identify children who should be entitled to special education services or that demonstrate utility for planning services for those children. In addition, practical approaches to implementing effective assessment strategies with young children are not clearly articulated, well validated, or widely implemented in systematic ways.

The preventative perspective of legislation guiding early intervention services advocates assessment of a wide range of strengths and needs. This legislation also mandates assessment of skills displayed by and resources available to the families of young children, as well as those skills displayed by the children themselves. As noted earlier, a family as a unit, rather than only the child with an identified disability or developmental delay, can be the recipient of early intervention services.

While speaking directly to the population of children between birth and three years of age, the preventative perspective of legislation guiding early intervention services also influences services to children between the ages of three to six. With three to six-year-old children, less emphasis is placed on intervening directly with families and federal legislation does not require development of an IFSP with this population. Nonetheless, use of an IFSP rather than an IEP is permitted and, in some locales, required. This policy is being considered for implementation in Iowa. Also, cooperation of families in the assessment and intervention pro- /ith young children is even more urgent than with -aged children as these children are not yet old enough for mandatory school attendance. Parental cooperation must be facilitated as professionals most often depend on parents to transport the child to services and/or allow professionals to work with them in their homes.

Moreover, if families are to be involved in the intervention process and/or be intervention recipients, logic would suggest they be involved in the assessment process. How to involve family members and other relevant individuals in the assessment process and what pieces of information to gather from family members about their child's skills, about their family as a whole, and about the child's environment are additional dimensions to consider when making entitlement and programming decisions for preschool-aged children.

Challenges with Assessment of Young Children

Assessing young children for the purposes of identifying a need for special education services and planning intervention strategies is often different than the process of completing assessments for these same purposes when working with older children. Young children's limited life experiences and attendant skills repertoire present a challenge in determining what to assess. The nature of young children makes the actual assessment process challenging.

First, let's consider what to assess. Several important assumptions guide all assessment practices. These include the notions that (1) behaviors assessed are important to note because they represent the phenomenon of interest; (2) continuity across these behaviors exists over time evidenced by the observed behaviors following a predictable, hierarchical, and sequential course of development; and (3) the observed behaviors are related to important outcome/s in a meaningful way (Lidz, 1991; Cicchetti & Wagner, 1990). Further, assessment is conducted to predict future behavior and to develop an anchor against which future change might be monitored (Cicchetti & Wagner, 1990). In this case, we are interested in predicting which children might need specialized services during the early years, and further in predicting what types of services will be most helpful to these children and their families. By definition, we are also interested in utilizing assessment information to evaluate the effect of services that might subsequently be delivered.

Determining which specific skills or behaviors are most important to assess is important for any child, but for young children this can be an especially difficult task. More than at any other age, young children's skills are not strongly differentiated among or between developmental domains or more traditional academic/educational areas. It is often impossible to distinguish any individual skill or behavior as a specific communication-related skill or a cognitive-

related skill. For example, when an infant looks at his/her parent and smiles and coos, that child is practicing skills related to later cognitive skills (recognition and classification of important environmental objects and/or events), social-emotional skills (development of affective and interpersonal skills), social skills (social exchange), and language skills (verbal communication). This lack of skill differentiation makes a holistic approach to assessing the young child's strengths and needs imperative.

A holistic approach to assessment is also an important consideration in determining how and where to assess young children's skills. Given young children's limited experiences with navigating the environment independently, consideration of contextual variables is of paramount importance for identifying children whose skill development is significantly different than that of same-aged peers. This makes it important to consider all behaviors within the context of the environments in which they are demonstrated, as well as in relationship to behaviors the child demonstrates across environmental contexts. Consideration of environmental supports and challenges is important in assessment of skills demonstrated by children at any age. But, the great variability of environments in which young children participate, as well as the overall lack of public regulation of those environments, makes this consideration paramount when assessing young children. Consideration of environmental contexts in which skills are displayed, and the related opportunities for skill development and performance expectations, is not only an important first step for identifying children who need special services. It is also important for identifying intervention goals and effective intervention strategies.

As with individuals of all ages, assessment of specific behaviors and skills exhibited by the child is an important guide for decisions about identification for services and for planning programming. However, the nature of young children also presents challenges in determining how to assess their skills. Young children generally display poor self-regulation skills, manifested by rather short attention spans and unpredictable behavior likely to vary widely from day to day and situation to situation (Lidz, 1991). In addition, young children frequently have had very individualized social experiences and may not have developed behaviors, such as pleasing an adult and working to solve a problem or find the right answer, often associated with success on school-related tasks which make up a large part of typical test procedures (Lidz, 1991). These characteristics of young children make it necessary to rely heavily on informants, such as parents, teachers, or child care providers to provide information regarding the child's general development, specific skills, and typical behaviors. By contrast, when assessing older children, it is frequently possible to gather a great deal of information directly from the target child, either via interview or direct test situations.

Issues Related to Instruments and Strategies Used to Assess Young Children's Skills

Adapting assessment strategies and instruments used with school-aged children to the preschool population is no easier than is translating the eligibility criteria from one population to the other. Identification of need for special education services in the school-aged population has depended heavily on assessment of intellectual functioning, as well as assessment of academic performance, social skills, and adaptive behaviors exhibited in school settings. Current practice recommendations facilitate moving all special education eligibility classification away from a categorical system to one governed by identification of a need for services (See Reschly & Tilly, this volume). These recommendations include a move away from reliance on standardized, norm-referenced assessments of intelligence and academic skills.

Making these same decisions regarding entitlement for special education services on behalf of preschool-aged children is hampered by the fact that these behavioral domains considered important in the school-aged population do not readily translate to skills classes that can be easily assessed in young children. Lack of valid and reliable instruments, particularly to measure intellectual functioning, also has been recognized and widely discussed (Cicchetti & Wagner, 1990; McCune, Kalmanson, Fleck, Glazewski, & Sillari, 1990). In addition, cautions regarding the power of tests administered during early childhood to predict later outcomes are numerous (Rossetti, 1990; Brookes-Gunn & Weintraub, 1983; Kopp & McCall, 1982). Furthermore, these types of standardized measures often yield little information that can guide program planning effectively.

Use of measures that compare a child's developmental levels in various domains to normative child development data has become a widely used practice in early childhood special education. This has been one means to circumvent the issues regarding use of standardized measures of intelligence with young children mentioned above, but it has also been advocated as an effective way to collect information relevant to intervention. Despite fears that developmental delay could become nothing more than an early childhood specific category for special education eligibility, as well as cautions regarding use of developmental measures discussed below, consideration of developmental domains provides a helpful framework to guide assessment

of young children.

Assessing a young child's skills across developmental domains such as cognitive, communication, social/emotional, self-care, and physical is more logical than is attempting to assess a young child's general intellectual ability or academic achievement, at least in part because of difficulties relative to defining and measuring these latter constructs with young children. In addition, research findings support the relevance of developmental data by providing strong evidence of relationships between early levels of development across domains, as well as between early developmental delays and later outcomes. For example, delayed language development is closely related to poor cognitive skills, which can in turn affect problem-solving skills (Cantwell & Baker, 1987; Wallach & Butler, 1984). Both delayed language development and delayed cognitive development are related to lower levels of social competence during preschool years (Guralnick, 1990) which in turn is related to a number of negative outcomes including problems with peer rejection in middle and later childhood (Parker & Asher, 1987); problems with developing social relationships in adolescence and adulthood (Haring, 1990; Mesibov, 1986); making successful transitions to vocational placements (Rusch, Chadsey-Rusch, & Johnson, 1990); as well as withdrawal from school, increased rates of psychiatric referrals, and some types of criminal behavior (Kupersmidt, Coie, & Dodge, 1990).

ASSESSMENT PROCEDURES AND STRATEGIES

The Division of Early Childhood (DEC), the primary professional organization focused on early childhood special education services, advocates establishing the presence of developmental delay as a means to identify young children's needs for special education services. In addition, they recommend that an assessment team can determine presence of developmental delay via consideration of a child's performance on a standardized developmental assessment instrument or documentation of delayed or atypical development in a particular developmental area by a qualified professional using a domain specific assessment or via observation (McLean, et al., 1991).

These recommendations reflect practice guidelines provided via special education legislation. Legislation guiding special education services for young children states that children may be identified as

> experiencing developmental delays . . . as measured by appropriate diagnostic instruments and procedures, in one or more of the following areas: physical development, cognitive development, communication development, social or emotional development, or adaptive development. (IDEA, 1991; see 33 U.S. Code, Sec.1401).

Developmental Assessment Practices with Young Children

Developmental measures tap behaviors and skills demonstrated by typically developing children, thus providing a normative reference. In addition, they tap skills across a variety of domains, thus providing an overall picture of the child's development. Overall, developmental measures better reflect the holistic approach recommended for evaluating young children than do measures of single skill domains or more narrowly defined constructs, such as intelligence. At the present time, using measurement of development across domains as a framework to guide assessment of young children also follows guidelines provided by special education legislation and recommendations made by professional organizations.

Measures of general development enable assessment of a child's skills in various domains, or developmental areas. They most often measure (1) cognitive skills, (2) language skills (often divided into expressive and receptive language skills), (3) motor skills (often divided into gross and fine motor skills), (4) social skills (sometimes called social-emotional skills or personal-social skills), and (5) self-help skills (often divided into feeding skills, grooming skills, and toileting or self-care skills).

Commonly used developmental assessment instruments. Numerous developmental measures are available and are being widely used with young children. Some of these measures, such as the *Batelle Developmental Inventory* (Newborg, Stock, Wnek, Guidubaldi & Svinicki, 1984) are norm-referenced scales. Others, such as the *BRIGANCE Diagnostic Inventory of Early Development* (Brigance, 1978) and the *Help for Special Preschoolers* (Furuno et al., 1985) are criterion-referenced instruments. Some of these measures, such as the *Carolina Curriculum for Preschoolers with Special Needs* (Johnson-Martin, Attermeier, & Hacker, 1990) were designed specifically to assist with providing a more accurate picture of a child's abilities than is often possible if a standardized measure is used in the prescribed way with children who have disabilities because administrative directions include suggestions for modifying assessment procedures to circumvent a child's specific disabilities (Bagnato & Neisworth, 1991).

Many developmental measures enable calculation of a developmental age level for an individual child. Still other measures, such as the *Assessment, Evaluation, and Pro-*

gramming System for Infants and Children (AEPS) — AEPS Measurement for Birth to Three Years (Bricker, 1993) and the *AEPS Measurement for Three to Six Years* (Bricker & Pretti-Frontczak, 1996) — while based on developmental norms, do not permit calculation of a developmental age score. In addition, some developmental measures are designed to be used either as a curriculum guide, such as the *Carolina Curriculum for Preschoolers with Special Needs*, or in conjunction with related curriculum guides, such as the AEPS Measurements designed to be used with the *AEPS Curriculum for Birth to Three Years* (Cripe, Slentz & Bricker, 1993) or the *AEPS Curriculum for Three to Six Years* (Bricker & Waddell, 1996).

Considerations and cautions. Young children's lack of skill differentiation makes design of instruments to measure development difficult and renders these instruments subject to numerous interpretations. Across measures and developmental domains, a great variety of items are used to ascertain current skill level/s. This suggests that choosing a single item, or even a small set of items, to represent a particular class or domain of skills is quite challenging. In addition, single items are often used to measure skills across more than one developmental domain, and various instruments define developmental domains in different ways. For example, certain vocabulary words may be used as a measure of both language development and cognitive development. Or, manipulating a set of objects in a particular way or copying or drawing a specific design or picture may be used as a measure of fine motor development, cognitive development, or both.

Another issue that warrants consideration is how skills are grouped into domains. These areas are frequently defined differently from one developmental measure to another. For example, one developmental measure might include two measures to assess language skills, a receptive and an expressive measure. In another scale, expressive language skills may be included in a domain called social-communication skills and receptive language skills may be subsumed within the cognitive domain.

Developmental measures frequently used with young children differ tremendously from measures of academic achievement frequently used with school-aged children. As measured by developmental assessment instruments, cognitive skills generally include skills such as concept development and problem-solving skills which are related to academic skills learned later. Similarly, language skills may include both expressive language and receptive vocabulary items, as well as language use items which represent skills correlated with reading skills during the elementary school [illegible]. The social domain generally includes skills related to interactions with peers and adults and often includes items such as answering questions addressed to the child and knowing basic facts about oneself such as name and address. Again, these skills are related to skills important for positive participation in elementary school classrooms, but they are not the same skills. In many cases, the skills expected of preschool-aged children and assessed via developmental measures differ qualitatively from those expected of school-aged children. Obviously, this presents challenges when attempting to use information describing developmental differences that may be present during early childhood years to guide programming that will facilitate development of behaviors related to the academic and social skills likely to be helpful to the child in elementary school classrooms and other community settings.

For purposes of identifying children to receive special education services, developmental assessment measures have been utilized most frequently to determine delay in one of two ways; either as a percentage of delay as determined by some specification of months of delay or in terms of standard deviation from the mean (Harbin, Danaher, Bailer & Eller, 1991). Meisels (1991) states that problems related to practical limitations of the measures and statistical treatment of data are inherent in either approach. However, DEC recommends use of standard deviations below the mean rather than percentage of delay as the preferred way to establish developmental delay based on test performance, primarily because of scaling weaknesses in various measures (McLean, et al., 1991).

Meisels (1991) also reminds the field that traditional standards of psychometric practice should be applied when using developmental measures with young children. However, Bailey and Nabors (1996) warn that, for many measures and procedures currently being used with young children, demonstration of psychometric soundness has not been pursued. Development and use of measures of young children's developmental levels must continue to be viewed as a work in progress.

Conclusions. Information gathered via developmental measures is ***one*** important consideration in assessment of young children. However, recommendations from professional organizations (McLean, et al., 1991) and assessment experts (Bagnato & Neisworth, 1991; Meisels & Provence, 1989) also argue against reliance on a developmental measure as the single criterion to judge need for services and strongly advocate that information be gathered from multiple sources via multiple measures.

Information regarding general and/or domain specific developmental levels needs to be complemented by assess-

ment of additional variables intrinsic to the child, as well as variables that describe the child's environment such as parent-child interaction and expectations and supports for independent use of a variety of skills. For example, numerous environmental factors (e.g., parental mental health, mother-child interaction, and stressful life events) experienced early in life predict later cognitive performance and a child's self-regulatory skills (Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987), arguing strongly for assessment of these variables when determining need for services and intervention goals.

Alternative Assessment Strategies

A variety of assessment strategies have been developed to facilitate gathering the information, additional to developmental data, needed to plan intervention goals and instructional strategies effectively. These strategies include gathering information from parents and other knowledgeable informants, as well as alternative assessment strategies, such as observation and arena assessment, often used to collect information related to children's developmental levels, interactions with others, and typical routines.

Involving family members in the assessment process. How to best involve family members in the assessment process designed to identify children who need specialized services, as well as how to gather information needed to develop effective interventions for young children and their families, has received attention in the early intervention literature in recent years (McLean & Crais, 1996). General agreement exists that if accurate information with good utility for program planning is to be gathered, it should be appropriate to involve parents in planning assessment purposes and strategies, providing information, and interpreting information (Bailey, McWilliam, Winton, & Simeonsson, 1992; Gradel, Thompson, & Sheehan, 1981; McGonigel, Kaufmann, & Johnson, 1991).

Gathering assessment information from family members is, perhaps, the most well understood and most frequently used means of involving family members in the assessment process. This has traditionally involved gathering developmental history information. More recently, many developmental measures have been developed to facilitate gathering information about a child via parent report (McLean & Crais, 1996). Similar types of information can also be gathered via less formal interviews with parents.

Today, recommended practices guiding early childhood special education services advocate that family members and professionals work collaboratively during all interven- hases (McLean & Crais, 1996). This would suggest mily members be active participants in all phases of assessment, including preassessment planning (Kjerland & Kovach, 1990; McGonigel, et al., 1991), participation in the process of gathering assessment data, and mutual sharing of assessment results (Brinkerhoff & Vincent, 1987).

Reliability of information gathered from parents is sometimes suspect as parents are not generally seen as child development experts, and it is assumed that parents may provide biased, and overly optimistic, reports of their child's skills. However, empirical evidence shows that parents' reports of developmental concerns for their preschoolers are just as likely to identify those children who warrant further testing as are developmental screenings administered by professionals (Diamond & Squires, 1993), and parent reports of developmental concerns are correlated with later school performance (Diamond, 1987). Information gathered from the infant and toddler population in Iowa showed that parental referral for assessment and possible intervention resulted in those children being subsequently identified as eligible for special education services more than 90% of the time (Meyers, McBride, & Peterson, 1996).

Overall, accuracy in the process of identifying children who are at risk for poor developmental outcomes is improved dramatically when information gathered from parents is systematically combined with that gathered from professionals (Meisels, 1991). Further, it must be recognized that the family's role in the life of a young child makes them familiar with information that would otherwise be unavailable to professionals (McLean & Crais, 1996) and that is often essential for effective intervention planning.

Gathering assessment data via observation. Observing children in various settings is another excellent way to gather information regarding the child's development and use of skills, as well as information regarding the various settings in which the child participates. Observations allow an assessor to judge the child's behaviors not only in reference to normative data but also in reference to peers in the setting and in reference to general expectations of the setting. Observations can also provide valuable information regarding numerous variables important in the child's environment including parent-child interactions, daily routines, and general supports available and expectations held across various settings. One major disadvantage of using nonstandardized observations with young children is the amount of time required to obtain adequate amounts of information, as well as the potential need to travel to a variety of locations.

Transdisciplinary play-based assessment. Play-based arena assessment represents one strategy used to gather a variety of types of information about a young child simultaneously. Play-based assessment procedures allow multi-

disciplinary team members to gather information more similar to what might be gathered via observations than it is possible to gather from interviews with parents or caregivers, as well as to gather information that frequently has more direct utility for intervention planning than it is possible to gather when developmental measures are administered in test situations. Play-based assessments have also been used as one means to circumvent the often cited disadvantage of need for frequent travel associated with making observations when assessing young children.

The words arena and play-based both describe this assessment process. Arena describes the notion that a group of people including professional team members and parents sit arena-style to observe the assessment session/s. Play-based describes the notion that the child being assessed will participate in both structured and unstructured play activities, interacting with a variety of materials and individuals.

Rationale for play-based arena assessments and procedures typically utilized have been described (Foley, 1990; Linder, 1993). A play-based assessment session allows observation of behaviors similar to those that would be seen during a test situation despite the fact that traditional test items are not administered in a standardized fashion. Likewise, this process allows assessment of behaviors likely to be seen during observations in naturalistic settings, but it serves to compress the overall amount of time needed to gather desired information. The process generally begins with a planning session during which team members representing different professional disciplines and the child's family members work together. Planning consists of identifying what skills and behaviors it will be important to elicit from the child, as well as deciding which strategies should prove most effective in this process, and making decision rules regarding how skills will be judged. One or more facilitators, which often include the child's parent/s, are identified to "play" with the child and elicit the targeted behaviors. Other participating team members observe the child's interactions with materials and people, each recording observations of specific behaviors as assigned and his/her perspectives regarding those behaviors.

Linder (1993) suggests including the following phases in an arena assessment: (1) an unstructured play period during which an adult play facilitator follows the child's lead allowing observation of the child's interests, approach styles, and comfortable interaction level; (2) a structured play session during which the facilitator is usually more directive with the child, allowing observers to see him/her engaging in cognitive and language activities not previously seen; (3) an unstructured play session during which the child has the opportunity to interact with another child, allowing observation of play interactions and social patterns, as well as behaviors that indicate levels of cognitive, language, and social skills; (4) a session during which the child interacts with a parent, allowing for observation of parent-child interaction during both unstructured play activities and more structured teaching sessions, as well as child behaviors when separated from the parent; (5) a session during which the child is engaged in both unstructured and directed motor play that allows for observation of the child's muscle tone and equilibrium; and finally, (6) a snack provided to the target child and participating peer/s which allows opportunities for observation of social skills and adaptive skills such as self-help skills and facility with oral motor skills.

Family Assessment

In recent years, the focus of assessment has expanded to include documentation of family resources, needs, and concerns, in addition to gathering child assessment information (Bailey, 1996). Conducting family assessments is necessary to meet legal mandates regulating early intervention services, but it is also widely recognized as important to facilitate effective interventions for young children (Bailey, 1996; Bailey & Simeonsson, 1988). Special education services have been provided to enhance child outcomes and this remains the overriding purpose. However, theoretical perspectives that support the transactional nature of parent-child interactions (Bronfenbrenner, 1977; Sameroff & Chandler, 1975) strongly suggest that intervention with the family unit may be the most effective way to achieve this end. Furthermore, legislation that established and regulates early intervention services also advocates this approach. Additional research evidence suggests that overall family outcomes may also be positively influenced by this approach (Dunst, 1985).

If intervention is to be targeted at the family as a whole, assessing the family's strengths, needs, and regular routines will be necessary to plan and evaluate interventions effectively, as well as to individualize services (Bailey, 1996). It has also been suggested that the process of family assessment can play an important role in building family-professional relationships (Bailey, 1996). Bernheimer and Keogh (1995) have suggested that family assessment is needed to develop sustainable interventions by revealing ways to weave them into the fabric of daily life.

Again, it is necessary to define parameters of what will be assessed, as well as find means to gather data that will be accurate and useful for intervention planning. Federal legislation guides this process by identifying family resources, priorities, and concerns related to the care of their child with a disability as appropriate domains for family

assessment (Bailey, 1996). This has been translated into practice by identifying a number of areas that may be important to target for gathering assessment data when intervening with young children and their families. These areas often include: (1) family members' perceptions of their child's needs and how these needs are likely to affect family functioning; (2) parent-child interactions; (3) family members' preferences for services, as well as their preferences for their own interactions with service providers; (4) the overall range of family needs; and (5) family resources and strengths (Bailey, 1996; Dunst, 1985). Overall, work over the past decade has shifted the focus of family assessment away from a search for family pathology to one aimed at identifying family resources and characteristics that will facilitate positive family adaptation (Fewell, 1995).

A variety of means to gather information regarding these variables is available, including observation, checklists, surveys, and interviews (Bailey, 1996). Interviews with family members are often seen as the preferable way to gather this information since the interview process can be individualized to each family's priorities and can also be more sensitive to family's cultural differences. In addition, interviews make it easier for questions regarding some variables, such as children's skills, to be asked in relation to daily routines and activities.

CONCLUSIONS

It is possible to gather information that has great utility for both making decisions regarding young children's entitlement for special education services, as well as for planning interventions for these children and their families. Several assessment strategies, including observations in a variety of settings, administration of developmental measures, parent and/or caretaker interview/s, and play-based assessments are helpful tools in gathering information. A variety of strategies are also useful tools for family assessment. No one assessment strategy, assessment measure, or even assessment approach will be universally effective when working with young children. Professionals must become adept at using a variety of assessment strategies, as well as appropriately matching strategies to the demands of the current assessment situation as determined by the characteristics and needs of the children, families, and caretakers with whom they are working.

While the information gathered to describe the general development and specific skills of young children often looks qualitatively different than that gathered to describe ıdemic and social skills demonstrated by school-aged children, use of this information to make decisions regarding entitlement for special education services is not substantively different at the different ages. Young children are entitled to special education services on the basis of an identified disability or developmental delay accompanied by a documented need for specialized services, just as are school-aged children.

Considerations offered by the Iowa Bureau of Special Education (1995), as well as those offered by early childhood special education experts (Carta, et al., 1991) provide useful parameters for judging why we implement early childhood special education services, as well as for how we plan, implement, and evaluate the outcomes of those services. Following from this, these considerations also provide useful parameters regarding how we work to identify children who should receive early childhood special education services, as well as what assessment information we will need to gather in order to plan effective and individualized intervention services for these children and their families.

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Functional Approaches to Low Incidence Populations

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Chapter 8

INTRODUCTION

Students from low incidence populations in America's schools include individuals with severe and profound mental retardation, multiple disabilities such as cerebral palsy and mental retardation, deafblindness, autism, and severe behavior disorders. Determining the intellectual level of low incidence populations can be challenging given the sensory, physical, or behavioral characteristics that may preclude traditional testing procedures. In contrast, an evaluation of adaptive behavior can be completed through observations of the individual's daily routines, teacher reports, and caregiver interviews. This chapter will focus on individuals who have severe deficits in adaptive behavior. The term "individuals with severe disabilities" will be used as a noncategorical reference to this low incidence population.

There are at least three advantages in utilizing a noncategorical approach for students from low incidence populations. First, because this population is low incidence, a district may have only a few, one, or no children with the same diagnosis. For example, a district may have one student who is deafblind, several children with multiple and cognitive disabilities with different medical diagnoses, a few children with autism at different age levels, and several children with severe mental retardation with differing medical classifications and widely discrepant skill levels (e.g., verbal and nonverbal). To develop educational guidelines for each category and subcategory would be both arduous and inefficient. Besides providing a framework for meeting the needs of children who have differing classifications, a noncategorical approach is also preferred because of the widely heterogeneous nature of children who share the same diagnostic label. There is no one approach that fits all children even within the same educational category and the same medical diagnosis. In contrast, individualized planning is needed to meet the unique needs of students from low incidence populations. The third reason a noncategorical approach is advantageous is that guidelines can be developed for this individualized planning for students who have a common educational priority. Although students from low incidence populations have divergent classifications and characteristics and need individualized planning, some common educational needs can be identified to guide this planning. These common educational needs will now be described

EDUCATIONAL NEEDS OF LOW INCIDENCE POPULATIONS

While individual planning is essential to meet the educational priorities of students from low incidence populations, some general educational needs can be considered for planning within a noncategorical approach. These educational needs are applicable for students with physical disabilities, mental retardation, autism, dual sensory impairments, and multiple disabilities who have severe deficits in adaptive behavior and communication.

Self-Determination

Individuals from low incidence populations often have had inadequate opportunities to express preferences and to make choices in their daily lives (Houghton, Bronicki, & Guess, 1987; Kishi, Teelucksingh, Zollers, & Meyer, 1988). This lack of opportunity may be due to professionals and caregivers not knowing how to present choice; or it may be due to the communicative difficulties students experience. Several research studies have shown that choice making can be encouraged by offering expanded opportunities and teaching choice making skills (e.g., Bambara, Koger, Katzer, & Davenport, 1995; Dunlap, dePerczel, Clarke, Wilson, Wright, White, & Gomez, 1994; Dyer, Dunlap, & Winterling, 1990; Parsons, McCarn, & Reid, 1993). Teachers can apply this research by offering a diversity of choices to students during the course of their daily routine (Bambara & Koger, 1996; Brown, Belz, Corsi, & Wenig, 1993).

Choice making is one of several skills that comprise self-determination. Wehmeyer, Kelchner, and Richards (1996) have defined self-determination as acting as the primary causal agent in one's life and making choices and decisions regarding one's quality of life free from undue

external influence or interference. Besides choice making, self-determination also includes decision making, problem solving, goal setting, self-management, self-awareness, self-knowledge, positive attributions of efficacy, and an internal locus of control (Wehmeyer, 1996). Students from low incidence populations often need opportunities to gain skills in these areas. For example, students can learn to self-manage their own behavior (Moore, Agran, & Fodor-Davis, 1989) and solve problems encountered in daily routines (Hughes & Rusch, 1989).

Person Centered Planning

Self-determination is the cornerstone of person centered planning. Person centered planning is a process that brings together a team of individuals who are committed to enhancing the student's quality of life to describe a desirable future with that person and the steps and actions to achieve it. In a school context, this person centered planning may focus on decisions such as how to encourage inclusion in general education or how to enhance transition to adult living. O'Brien (1987) described five desirable outcomes for lifestyle planning including increased community presence, choice, competence, respect, and community participation. For school-aged individuals, increased school participation and overall educational opportunities may also be indicators of quality of life.

Social Membership

One priority that may emerge in person centered planning is increased social membership. For example, the student's parents may be concerned about their son or daughter's need for friends in a new class placement. Recent research has indicated that participation in general education can improve social contacts and friendships for students with severe disabilities (Kennedy, Cushing, & Itkonen, 1997). Other students may need structured social supports in a general education setting such as those designed by Hunt, Alwell, Farron-Davis, and Goetz (1996).

Support for Inclusion in School, Community, and Jobs

Social networking is only one aspect of an inclusion experience. Students also need to be able to gain access to the site and perform the necessary skills for the setting. Gaining access to the site may come out of the person centered planning process. In a resource on planning for general education contexts, Giangreco, Cloninger, and Iverson (1993) describe how to prioritize and plan for these set- Similarly, transition planning can help students gain access to community and job sites that are priorities for adult living (Wehman, 1996).

Support to gain access to inclusive opportunities and to network socially within these sites are two important forms of support for inclusion. A third form of support is instruction to gain competence for the activities in the site. Many students have benefited from a "coach" who has worked with them in the site. For example, Goetz, Lee, Johnston, and Gaylord-Ross (1991) demonstrated how individuals with dual sensory impairments succeeded in community jobs through a job coaching model. Similarly, a leisure coach can help individuals participate in community leisure activities (Cooper & Browder, in press; Schlein & Larson, 1986). Similarly, a paraprofessional can be an important educational coach for students to benefit from general education settings.

While a coach can be an important resource to participate more fully in the activities of a site and master key educational or job skills, educators need to be sensitive to the naturalness of support. Much has been written in recent years about utilizing natural supports in inclusive settings (Nisbet, 1992). Planning teams should begin by asking what support already exists in the context to encourage the student's success. When additional supports such as a paraprofessional or a job coach are selected, planning should focus on how to blend this person and his or her assistance in the natural context. For example, in a general education class, a paraprofessional may assist other students as well as the student with special needs. The paraprofessional should also be careful not to intrude when other students interact with the student.

Life Skills Curriculum

For many years, professionals have described the need for a functional curriculum for students with severe disabilities (Brown et al. 1979). In following a functional curriculum, teachers address skills of daily living that are relevant to the student's current and future environments. These are often called "life skills." Many studies have emerged in the last two decades demonstrating how to teach life skills which have been described with teaching guidelines in resources such as those by Snell (1993), Ryndak and Alper (1996), and Wolery, Ault, and Doyle (1992). Examples of life skills include self-care, home management, use of community resources, functional academics, personal safety, pedestrian and bus training, leisure activities, and job performance.

One form of support students may need to learn these skills is community based instruction. Students may need

opportunities to perform activities in the context in which they actually occur to learn and maintain these skills. Overall research on the acquisition of community skills has shown that students need opportunities to practice these skills in community contexts (Snell & Browder, 1986). Many students from low incidence populations, especially those who have begun transition planning, will benefit from having some portion of their school week devoted to instruction in community contexts.

Recent research has also shown that students with severe disabilities can benefit from general education inclusion (Hunt & Goetz, 1997). Educators sometimes struggle with how to teach life skills priorities in the context of academically-focused classrooms. This balance requires team planning in the annual assessment and IEP planning process which is described later in this chapter.

Systematic Instruction

Individuals with severe disabilities can learn a wide variety of skills when given instruction that is "systematic" that is, that uses a specific task analysis of skills, defined prompts for errorless learning, and descriptive feedback. A large body of research now exists that demonstrates options for this systematic instruction and the benefits for students with severe disabilities (Wolery & Schuster, 1997). The use of these teaching techniques has been demonstrated in school, community, and job contexts. Recently, professionals have demonstrated how to apply these techniques in general education contexts, for example, by utilizing peer tutors (Collins, Branson, & Hall, 1995).

Inclusive Therapy and Collaborative Teams

Students with severe disabilities may need related services such as speech, occupational, or physical therapy. Rainforth, York, and Macdonald (1992) have described how these therapies can be offered in conjunction with general education inclusion through the use of a collaborative planning team. For example, related services personnel may work directly with students within the context of the educational program. Objectives related to communication and motor skills are embedded in activities throughout the daily routine. The benefits of this inclusive therapy is that students will learn *when* and *why* to use new skills gained through therapy as well as *how*.

Summary of Educational Characteristics

In summary, students from low incidence populations need person centered planning to define individual priorities. Students need opportunities to learn and practice how to make choices and direct their own education and overall life. This planning will often lead to inclusive opportunities in school, the community, or job experiences. Support for this inclusion will emphasize the natural supports that exist in these contexts, but will also offer assistance to gain access to the site, social facilitation, and instructional coaching as needed to achieve the full benefits of the inclusive context. Systematic instruction offers an especially powerful strategy for gaining competence. This instruction, and related services, need to be blended in inclusive contexts through the use of collaborative team planning.

DETERMINING EDUCATIONAL PRIORITIES

Students from low incidence populations often come to school with one or more medical diagnoses of their disability. For example, students may have been identified with genetic abnormalities such as Angelman's syndrome or with central nervous system damage. Typically, the student will have been identified by their pediatrician as having developmental delay. Sometimes the child has received a psychological diagnosis such as Pervasive Developmental Disability or Severe Mental Retardation. While these diagnoses can be important in helping physicians, families, and educators understand the characteristics of the disability, they seldom prescribe how to meet the student's unique educational needs.

Educators need to determine these unique educational needs through person centered planning with the student and family and through assessment of the student's specific life skill needs. This assessment can occur on three levels. At the first level, educators verify that the student can benefit from a life skills approach and identify his or her overall priorities. This usually is determined through a comprehensive educational report completed every two to three years. At the second level, these priorities are more clearly defined in the annual individualized educational plan (IEP). On the third level, ongoing evaluation by the teaching team fine tunes this plan based on the student's progress. These levels of assessment will now be described.

Comprehensive Evaluation for Low Incidence Populations

A five step process for comprehensive assessment can be used for students who do not benefit from traditional, academic assessments or standardized testing (Browder, 1991; Browder & Snell, 1988). This comprehensive assessment can be implemented by a collaborative team of professionals who share their knowledge about the student

(Rainforth, et al., 1992). The student and his or her parents are key members of this team. The first step of the assessment process involves educating the team about the student's past progress. Next, the student's and parents' priorities need to be identified through person centered planning. These priorities focus the team on the specific information gathering needed. For example, if full inclusion in general education is the priority, the comprehensive evaluation needs to include a discrepancy analysis between the expectations of the target class and the student's current skills. Accommodations, support, and instructional priorities can then be planned. This information gathering can be completed through the last three steps of the comprehensive assessment process. The first may include completing a general skill screening for the student through completion of an adaptive behavior scale, life skills curriculum checklist, and general observations in priority settings. The next step includes conducting ecological inventories of relevant settings to determine the skills needed in these contexts. Finally, through discrepancy analysis, priorities for instruction, support, and accommodation are established.

Annual IEP Development

A similar collaborative process can be used for developing the IEP on an annual basis (Browder, 1991). In the IEP development it will be especially important to include the student, parent, and all who will teach and work with the student in developing the student's priorities. For students with severe disabilities, these priorities will typically be addressed across settings and professionals. For example, a goal to use a picture communication system would need to be considered not only with the speech therapist, or only during language arts in general education, but also in physical education, job training, and all other activities of the day.

Past Progress. Once the team is formed, they can begin by reviewing the students' priorities, preferences, and recent progress. For development of the IEP, the team may have worked with the student and know him or her well. The beginning point can then be defining the student's current educational level through reviewing the previous year's progress. The team can consider what has worked, what should continue, and what needs to change.

Person Centered Planning. This review of what has been working and what needs to change can initiate a person centered planning process ***if the team is willing to listen to the student and the parents and be creative.*** A format often used in school contexts for person centered plan- s the McGill Action Planning System (Vandercook, & Forest, 1989). In this format, the team considers a typical routine of students who are of the same chronological age, with similar interests, who are nondisabled. The daily school routine of the student with disabilities is then described. The team looks at the discrepancy between the two to consider how to create access to more inclusive opportunities.

Student preferences and self-determination. As this person centered planning process unfolds, the team may discover that they have inadequate information on the student's preferences if the student has limited communication skills. In recent years, an emerging technology has developed for preference assessment for students with severe disabilities (Lohrmann & Browder, in press). Through these procedures, one or more team members can provide opportunities for the student to sample materials, activities, and settings to gain more information on preference. Often, opportunity sampling becomes an important priority itself to be an IEP objective. For example, an objective might be for the student to communicate "like" or "dislike" while trying a new leisure activity each week.

Similarly, the students' overall skills in self-determination may become targets for the IEP. The team can consider how the student expresses choice, ways to increase choice opportunities, current skills in self-management and problem solving. Increasing the student's participation in the IEP meeting itself may also be a priority and may require giving the student and his or her parents strategies to get the student more involved in the IEP process (VanReusen & Bos, 1994)

Parent participation. Parents should be key team members in any IEP process because of their extensive knowledge of the student. For students with severe disabilities, parent participation is especially crucial because of the focus on life skills which need to be taught in ways that honor family and cultural values (Lim & Browder, 1994). Parents whose cultural background differs from that of the majority of professionals on the team may be especially at risk for nonparticipation (Sontag & Schacht, 1994; Weber & Stoneman, 1986). This participation can be increased by gaining rapport with the family and gaining cultural sensitivity for interviewing the family about the student (Dennis & Giangreco, 1996).

Ecological inventories. When the student and parents' priorities are known and goals for the educational program have been generated, a helpful step to define the specific skills for the IEP is the implementation of ecological inventories. An ecological inventory is an evaluation of the skills needed in the student's current and future environments. Research on assessment with students with severe disabilities has shown that incorporation of an ecological

approach can provide information that is useful to planning and more positively reflects the capability of the student with special needs (Linehan, Brady, & Hwang, 1991; Downing & Perino, 1992; Linehan & Brady, 1995). Typically, the ecological inventory will involve an observation of potential sites for instruction and interviews with key personnel in these sites. For example, in planning for leisure instruction at the community recreational facility, a team member might visit the site and interview the person who directs the children's school aged activities. Or, in planning for inclusion in the high school home economics class, a team member might observe several options and talk with the teachers. Once a class is chosen, the teacher should be invited to be part of the IEP development team.

Situational assessments. The planning process can also be enhanced by having the student try out some target settings and activities. For example, arrangements may be made for the student to visit several high school classes or potential job sites. If this visit can include participation in the activities of the site, direct observation of the student can provide important information to determine the forms of support that will be needed for instruction in this site. The student's preferences for the site and its activities can also be observed through noting the duration of the student's participation, his or general level of responding, and whether or not the student tries to leave the site or end activities. Sometimes teachers might also conduct specific task analytic assessments of skills in the site to pinpoint IEP priorities.

Defining priorities. A person centered planning process for IEP development is more than a single meeting to select objectives. Students with severe disabilities typically need the support of a collaborative team who will conduct ongoing planning and take action to make their educational experiences appropriate and beneficial. The IEP team, if it includes the key members in the student's program (general education teachers, special education teachers, and therapists), can become an ongoing group that meets on a regular basis to review progress and update objectives. Problems encountered in the inclusive contexts can then be solved through a collaborative effort.

Example of an annual assessment. Marjorie was a 14 year old girl with Angelman's Syndrome which was manifested as mild cerebral palsy and severe mental retardation. Marjorie was nonverbal, but could use sounds and some gestures to make basic needs known. Marjorie also had a visual impairment and wore glasses. Marjorie was highly social, enjoyed people, and would sit attentively when others talked with her or performed music. Marjorie's teacher, Mr. Duran, came into a school context where IEP objectives traditionally had been written separately by the special education teacher and therapists and shared in one annual meeting. To initiate a collaborative process for the annual assessment and IEP development, Mr. Duran invited Marjorie, her parents, therapists, the general education music teacher, and the employment specialist for a brainstorming meeting. At this meeting, he led the group through the first two steps of the process by reviewing Marjorie's successes in the prior year (e.g., she had participated well in 6th grade music through using instruments and clapping) and by starting the person centered planning process focusing on Marjorie's transition to adult living. The group set general priorities for Marjorie to increase her participation in general education classes, to begin community based job training, and to enhance her expressive communication skills. Mr. Duran then facilitated making an action list of information that would be needed to write the IEP objectives. He asked team members to volunteer for these actions. For example, the employment specialist agreed to arrange for Marjorie to tour and sample some community jobs. The music teacher offered to work with Mr. Duran to arrange some tryouts in other general education classes. The speech therapist volunteered to observe Marjorie's daily routine to brainstorm some more gross motor signs that might be targeted. Her parents agreed to generate a list of activities that Marjorie liked and might want to be able to request with signs. Mr. Duran offered to conduct some systematic preference assessments in Marjorie's current teaching contexts and to conduct a home visit to spend more time with the parents and Marjorie to understand her needs and preferences. Mr. Duran also volunteered to collaborate with the school psychologist to conduct a functional analysis of Marjorie's sporadic resistance to people and activities that included sitting on the floor and mild physical aggression. When the group came back together, the special education coordinator, two additional general education teachers, the school guidance counselor, the school psychologist, and the paraprofessionals joined the team for Marjorie's "official" IEP meeting. The team members shared the information gathered and 10 priority objectives were written as a team. The team also developed a schedule for Marjorie that included spending three periods in general education classes with support from Mr. Duran and the paraprofessionals, two periods in job tryouts or community based instruction, and one period receiving some tutoring from Mr. Duran (parental preference). Speech and physical therapy would be embedded in the community and general education contexts through therapist consultation with the teachers and the therapist each serving as the support person for Marjorie one day a week in general educa-

Table 1. Examples of IEP Objectives Generated by Collaborative Team

1. During each class period, when given a choice of two objects to be used during the activity (e.g., two instruments in music, two types of spoons in cooking, two food items at lunch; two types of wallets for the community), Marjorie will indicate a choice by pointing her hand to one of objects to be used during class activities. She will confirm her choice by nodding "yes" when asked, "Do you want this one?"
   Criteria: Expresses choice for 8/10 opportunities for two consecutive days.
2. At the beginning of each class period when asked "What's next?", Marjorie will identify the class or the major activities through getting an item from her backpack or using a gross motor sign. Criteria: 4/5 days for each communicative label. Target labels: towel (PE), clapping (music), cook sign (home ec- cooking), eat sign (lunch), "la" sound ("Hello!" -join friends for lunch), wallet (community-purchasing), work sign (community-job tryouts).
3. Generalization: When asked "What do you want to do?" during a free period with Mr. Duran, Marjorie will use one of her objects or signs to request one of the activities she has learned to label or a spontaneous gesture/object use.
   Criteria: Requests item without prompting 3/3 sessions.
4. Across a variety of community settings, Marjorie will use either a money access card or currency (prearranged dollar amount) to make purchases with all steps of the task analysis correct for 3/3 times.
5. In the context of at least 5 different community jobs, Marjorie will increase the duration of her time on task and number of independent responses in the job routines.
   Criteria: Duration of time on task will at least double; at least two new responses in each job routine.
6. Across a variety of school and community contexts, Marjorie will express her preference for a break or rest or to end an activity by covering her eyes with her hands.
   Criteria: Uses gesture on at least three occasions and no days of sitting on floor or hitting for a month.
7. Across a variety of school and community contexts, Marjorie will use her thumb and fingers in opposition to grasp objects and will carry them while walking.
   Criteria: Carries objects daily for 3/3 days; Carries her 5 pound bookbag for the 3 minute walk to class.
8. When shown a variety of pictures of people, places, and activities in textbooks, computer programs, magazines, and a photo album that are amplified for her low vision, Marjorie will point to what others are discussing within a minute of the first time the picture is mentioned.
   Criteria: Increase receptive vocabulary by at least 2 words weekly.
9. When encountering a new activity at school, work, or in a community context, Marjorie will follow the model of a peer to blend and participate in the activity (e.g., pep rally, safety meeting at work).
   Criteria: Marjorie does at least one response the peer does and does not disrupt the activity.
10. During meals or snacks, Marjorie will eat her own food and use a napkin.
    Criteria: No instances of grabbing food; uses napkin without being told for 3/3 observations.

tion. Mr. Duran asked the teaching members of the team if they would be willing to meet monthly to review Marjorie's progress and plan the "next steps." While not all members of the team felt they could contribute this time, Mr. Duran was able to negotiate enough participation to establish an ongoing person centered planning team for Marjorie. He also planned to negotiate with the building principal to recognize this team as a "faculty committee" assignment making it more tenable for members to continue in this role. The 10 priority objectives that the team developed for Marjorie are shown in Table 1 (see above).

Ongoing Evaluation

To enhance the team's decision making about ongoing ss, data are needed for each IEP objective. Research on data-based decisions has indicated that students' progress improves when teachers increase their skills in analyzing data (Browder, Liberty, Heller, & D'Huyvetters, 1986; Belfiore & Browder, 1992). By using a standard method to summarize data and a set of guidelines for making instructional decisions based on data, teachers may find that their planning becomes more efficient as well as more effective. Browder (1991) and Farlow and Snell (1994) have described guidelines for data-based decisions. In both systems, response by response data is taken for the student. A standard graph is used for summarizing data across IEP objectives and guidelines are utilized for making instructional decisions. In general, when students are making progress as evidenced by increasing trends in the data, the acquisition of new responses, or increased means, the best decision

may be to continue instruction without disruption or change. When progress is deteriorating, as evidenced by a decreasing trend, loss of known responses, or other regression, the team should consider whether factors have influenced the student's health or well being or if the student is no longer motivated to perform the responses. Slow or inadequate progress usually reflects the need for more effective teaching methods and no progress may indicate that the skill needs to be simplified (Browder, Demchak, Heller, & King, 1989).

Table 2. Forms of Educational Support for Students with Severe Disabilities

1. Ongoing Team Collaboration and Training
- Ongoing person centered planning
- Parent involvement
- Professional training
- Obtaining resources (e.g., extra help for the classroom)

2. Natural Supports
- Peer assistance in general education class
- Coworker assistance on the job

3. Facilitation of Social Inclusion
- Providing information on the student's communication system, equipment
- Using a buddy system
- Organizing clubs that include students with disabilities
- Using interactive activities and materials

4. Accommodations and Environmental Arrangements
- Classroom arrangements
- Adapted materials
- Augmentative communication and other adaptive equipment

5. Enhancement of Self Determination
- Choice and decision making
- Self management
- Problem solving
- Self advocacy

6. Systematic Instructions
- Task analyses
- Systematic prompting (e.g., least intrusive prompts, time delay)
- Descriptive feedback

7. Positive Behavioral Supports
- Functional analysis
- Functional communication training
- Antecedent strategies
- Differential reinforcement
- Person centered planning related to problem behavior

8. Generalization and Maintenance
- Teaching at time and place where skills are used
- General case instruction

DEVELOPING COMPREHENSIVE EDUCATIONAL SUPPORT

Overview

During the 1980s, the primary form of educational support for individuals with severe disabilities was systematic instruction of life skills. The advantage of this focus was that many highly effective teaching methods were developed such as time delay and least intrusive prompting (Ault, Wolery, Doyle, & Gast, 1989). The disadvantage was that students sometimes had to "prove" their readiness for inclusive settings through skill acquisition. In the 1990s, educators learned to create inclusive opportunities and then, augment systematic instruction with other forms of educational support for student success. This section will describe these various forms of support including: a) ongoing team collaboration, b) encouragement of natural supports, c) facilitation of social inclusion, d) accommodations and environmental arrangements, e) enhancement of self-determination skills, f) systematic instruction, and g) positive behavior support. These are also summarized in Table 2.

Ongoing Collaborative Team

Based on a review of 19 research investigations of inclusive educational programs for students with severe disabilities, Hunt and Goetz (1997) offered several conclusions about the impact of inclusion and how to enhance student success. First, Hunt and Goetz (1997) noted that the research shows that students with severe disabilities have achieved positive outcomes in general education contexts including learning new skills and gaining social acceptance. Similarly, this research has shown that students who are nondisabled experienced positive outcomes when students with severe disabilities were included. Hunt and Goetz (1997) concluded that three forms of support were apparent in the research that demonstrated positive outcomes. These supports included parent involvement, collaboration among professionals, and curricular adaptations. Similarly, in a survey of teachers about the supports needed to make inclusion work, Werts, Wolery, Snyder, & Caldwell (1996) found that training, support for a team of professionals, and having help in the classroom were mentioned by a large number of respondents. From these studies, it becomes evident that an essential form of support for students with severe disabilities to succeed in inclusive classrooms is a team of parents and professionals collaborating in ongoing decisions about inclusion. Staff may also need training to accommodate the needs of the student with disabilities and resources may be needed to provide extra help in the classroom. The person centered planning approach

described earlier can be an essential form of ongoing support for the student to succeed in an inclusive context.

Natural Support

In planning for students' support needs, it is important to offer no more supports than needed. For example, not all students with severe disabilities need a paraprofessional to assist them to participate in general education. The beginning point for planning should be to encourage the natural supports already present in the educational contexts. Jorgenson (1992) notes that creating a culture of cooperation and caring within a school or classroom can facilitate natural supports for students with severe disabilities. An example of this natural support is assistance from peers. For example, peers may be able to distinguish when to help and when to encourage students to help themselves (Janney & Snell, 1996). Similarly, in community based job training, supervisors and coworkers can provide natural supports to the employee with severe disabilities (Nisbet & Hagner, 1988).

Facilitation of Social Inclusion

The opportunity to be in general education can enhance social networks for some students (Fryxell & Kennedy, 1995). Other students may need additional supports for social inclusion. For example, Hunt, Alwell, Farron-Davis, and Goetz (1996) encouraged the social inclusion of students with significant physical, sensory, and cognitive challenges in several ways. First, they provided ongoing information to the peers who were nondisabled about the students' communication system, adaptive equipment, and educational activities. This information was provided in the context of activities. Additional information was provided through classroom clubs that included the student with special needs. They also utilized materials and activities that would encourage social exchange between the students, such as interactive computer activities and toys or games. An additional strategy involved utilizing a "buddy system" for students in the class to pair the student with disabilities with a peer for some activities.

Accommodations and Environmental Arrangements

Environmental arrangements and accommodations for the person's disability can highlight the student's current abilities and make their functional limitations less a barrier to learning and participation. For example, Martens and Kelly (1993) found that students in well-managed and organized classrooms spent more time engaged in academic progressed at a more rapid pace, and demonstrated higher levels of academic achievement. Wolery and Shuster (1997) have described several arrangements that might be utilized with students with severe disabilities including structuring dimensions of the social environment (e.g., proximity of peers), structuring dimensions of space and type of materials, structuring roles during free time, structuring routines to increase teachable moments, and modifying materials based on student preferences. Environmental arrangements may also include adaptive equipment to accommodate for physical or sensory impairments (Orelove and Sobsey, 1991). For example, in job training individuals who are deafblind, support providers might utilize braille embossers, computer screen magnification, or a closed circuit television system to amplify an image on a screen (Belanich & Gelvar, 1996).

Opportunities to Learn and Use Self-Determination

Earlier in this chapter, enhanced self-determination was described as one of the educational needs of students with severe disabilities. The specific support students may need for enhanced self-determination are direct instruction in these skills and opportunities to use and practice these skills. To increase opportunities for choice making, the teacher can: a) incorporate student choice early in the instructional process, b) increase the number of decisions the student makes in an activity, c) increase the number of domains in which decisions are made, d) increase the significance of choices students make, and e) communicate clearly with students about the limits within which choices can be made (Shevin & Klein, 1984). Besides offering opportunities, teachers can also offer direct instruction in skills such as choice making, self-management, and problem solving. A substantial body of research exists demonstrating that individuals with severe disabilities can learn and use self-instruction (Hughes & Agran, 1993).

Systematic Instruction

Students with severe disabilities can acquire a wide range of skills when they are task analyzed and taught systematically with prompting and feedback (Ault, et al., 1989). After defining a specific behavioral objective for training, the skill is broken down into its component parts. Often these component parts are the chain of responses needed to complete a life skill such as putting on one's coat (Reese & Snell, 1991). Next, specific prompting is planned to be used with each response in the task analysis. These prompts may be gestural, verbal, models, physical guidance, or other forms of visual or auditory cues (Demchak, 1990). The instruction might include utilizing

a hierarchy of prompts with increasing assistance such as a verbal prompt followed by a model and then physical guidance as necessary for each step of the task analysis. This method, known as the "system of least prompts" has a strong empirical base (Doyle, Wolery, Ault, & Gast, 1988). In contrast, the teacher may select only one type of prompt, such as a model of the correct response, and use it for each step of the task analysis. Over time, this prompt is faded by introducing increments of time between the cue to perform the response and the prompt. This method, which is called "time delay," also has a strong research foundation (Handen & Zane, 1987). While many variations of prompting exist, the system of least prompts and time delay are effective, efficient, and can be used across a wide variety of skills. In addition to prompting for each step of the task analysis, systematic instruction also includes giving instructive feedback. For example, the teacher might say "Good, you put your arm in the coat sleeve!" Or, "No, try the other sleeve" if the student were putting the coat on backwards. A review of instructive feedback has shown that students learn and maintain information from this instructive feedback. (Werts, Wolery, Holcombe, & Gast, 1995.)

A large body of research exists showing students can learn life skills in their home, school, community, and job with systematic instruction (Ault et al., 1989; Wolery & Schuster, 1997). Recently, educators have begun to consider how to apply these methods to students with severe disabilities included in general education contexts. Although professionals have agreed that many systematic instruction procedures are appropriate for use in general education (Billingsley & Kelley, 1994), it is not always easy to determine how to adapt these procedures for this context. For example, systematic instruction is typically implemented on a one to one basis or in small groups. Some recent research has demonstrated ways to replicate systematic instruction in general education by a professional who works with a small group (Whalen, Schuster, & Hemmeter, 1996) or peer tutors (Collins, Branson, & Hall, 1995).

Positive Behavioral Support

Sometimes students have challenging behavior that makes the achievement of goals of school and community inclusion difficult. In recent years, professionals have focused on comprehensive support plans to overcome these behavioral challenges. First, functional assessment is conducted to determine the function the behavior serves for the student (O'Neill, Horner, Albin, Storey, & Sprague, 1990). For example, for a student with limited communication skills, a problem behavior like hitting may function to help the individual end a task or gain social attention. Once the functional assessment is completed a comprehensive support plan is developed. This plan may include functional communication training, curricular revisions, offering more student choices, focusing on setting events for the behavior, and using basics of applied behavior analysis to arrange antecedents and consequences to encourage the use of alternative behavior (Horner & Carr, 1997). The design of these comprehensive interventions can be strengthened by using a person centered planning approach to look at a students' overall educational priorities. For example, a student who hits to escape instruction may be receiving curriculum content that lacks meaning for the student or instruction that is ineffective or inefficient. Further, the student may be in a restrictive educational context that offers few opportunities for variety or social interaction with peers who are nondisabled. Addressing these broader issues are essential to making long term gains in behavior change. Specific behavioral strategies may also be needed such as prompting the use of an alternative skill, differential reinforcement for other behavior, and providing minimal attention for the problem behavior.

Generalization and Maintenance

The best way to ensure the maintenance and generalization of skills is to teach skills in the context in which they are used and to give students the opportunity to perform these skills on an ongoing basis. Sometimes students need additional strategies for generalization and maintenance. One generalization strategy that has a strong research base is general case programming (Chadsey-Rusch & Halle, 1992; Day & Horner, 1986; Horner & Albin, 1988). General case programming involves several steps including: a) defining the range of generalization targeted (instructional universe), b) developing a generic task analysis for the skills, c) defining the stimulus and response variation for each step of this task analysis, and d) teaching across items or settings that sample this range of variation (Homer & Albin, 1988). For example, if a student is able to purchase items in the convenience store close to home, but unable to use stores in the broader community or near a job, the instructor would determine the range of stores targeted for generalization (e.g., all in Allentown area). Next, the teacher would write a task analysis for making a purchase in a convenience store. Using this task analysis, the teacher would define the variation that might occur for each step. For example, some stores have self-service food areas and others

require asking for assistance to purchase a sandwich. In some stores, the sodas are in cases to the rear of the store. In others, they may be on side wall or in two areas by type of beverage. After defining all the many variations that exist, the teacher then selects some key stores for training that sample this range of variation. The teacher also plans to evaluate the student's generalization in some untrained stores.

Example of Comprehensive Educational Supports

After Marjorie's team had developed the IEP objectives presented in Table 1, the people who agreed to be on her ongoing team began to plan for her new school year. Together they reviewed potential sites for community instruction including job training, discussed how to encourage success in her new general education classes, and planned for implementing these objectives across the day. Given Marjorie's excellent social skills, the team felt that a key ***natural support*** would be socialization and assistance from peers. They talked about how to introduce students to each other on the first day of school in a way that helps Marjorie be a part of the class and encourages students to interact with her. For example, the music teacher planned to introduce the students using a popular song that paused and had each section of instruments play a note together and then each give their names. Marjorie would be introduced with the percussion section. Before class, she would ask Sam, who knew Marjorie from last year, to say Marjorie's name for her (she was nonverbal) and prompt Marjorie to wave. The paraprofessional with Marjorie would sit up front with the music teacher, near the percussion section, and introduce herself simply as the teacher's assistant (versus Marjorie's assistant). She would blend her help by handing out music and doing other classwide tasks and would only prompt Marjorie directly after waiting a few seconds to see if a classmate prompted her. The other teachers brainstormed similar ways to encourage peers to be ***natural supports*** for Marjorie.

These procedures would also encourage ***social inclusion.*** However, the team was concerned about the lunch period because Marjorie did not have specific friends with whom to eat and because she had some eating problems (e.g., grabbing food.) To facilitate social inclusion for Marjorie and the other students in his class, Mr. Duran, the special education teacher, set up a "Friendship Club" which was available to any of the middle school students. He asked clusters of students in the cafeteria to sign up if they were willing to have someone join them for lunch. He also had a "Welcome to East Middle School" table for students looking for a place to eat lunch (e.g., new students, students eating alone). He then helped students, including students with special needs, find a table of students with similar interests.

In considering ***environmental arrangements***, the team addressed Marjorie's limited vision through encouraging all teachers to have her sit close to the teacher and board. A computer screen magnification system was also obtained for home economics where many of the recipes were illustrated through a computer program. As the school year progressed, the team also had to cope with complaints that Marjorie would pull hair. This was resolved simply by arranging seating so she was not near individuals with long hair.

An additional issue brought to the team for discussion was that the paraprofessional felt she had to sit beside Marjorie at all times because of her drooling. The paraprofessional would wipe the drool to keep Marjorie clean. The paraprofessional's attention to the drooling also seemed to set the occasion for negative social comments from some peers. The team decided to teach Marjorie ***self-management*** of her drooling. During the tutoring sessions, Mr. Duran used repeated trial instruction to teach Marjorie to wipe her chin with a handkerchief when verbally prompted. He also praised her for having a "dry chin" for increasing long periods of time. The generalization of this training was implemented by the paraprofessional who would discretely tell Marjorie to wipe her chin and would praise her quietly for a "dry chin" about once every 5 minutes. The paraprofessional then also incorporated peer assistance informally. For example, she would say quietly to someone who sat near Marjorie, "I need to check papers for Mr. Thomas. Can you help Marjorie remember to wipe her chin?" Over time, the paraprofessional was able to move away from Marjorie's side. By January, the music teacher no longer felt the paraprofessional's presence was needed.

In addition to these support strategies, Marjorie received systematic instruction for each of her IEP objectives. For the first objective shown in Table 1, choicemaking, the team goal was to give Marjorie at least 10 opportunities during the day to point to one of two objects. Each team member set the goal of offering one or two choices during the session. Mr. Duran showed the team how to use a simple time delay strategy in which the teacher waited a designated time for Marjorie to point to the object. If she did not point to one of the two objects, the teacher said, "I'll help you choose" and guided her hand. They confirmed the choice by asking her "Did you want this one?" to see if she nodded yes. In Marjorie's book bag was a notebook with a sheet

for choice in each class period on which the teacher made a simple notation of whether Marjorie made the choice with or without help. This program was implemented by a variety of people. In some classes the general education teacher implemented the plan. In others, or on some days, a peer was asked to provide the choice and score the form. For some, the paraprofessional or Mr. Duran scored the form.

For labeling the next activity, the paraprofessional used a system of least intrusive prompts to get Marjorie to sign or get the necessary item out of her book bag. She would begin by saying, "What class is this?" and wait a few seconds. If Marjorie, gave the correct item or signed correctly, she gave descriptive praise such as "Perfect! You need your apron for home ec!" If not, she gave a verbal prompt, "Get out your apron for home ec." If there was still no response, she modeled getting the apron out and then returned it to the book bag and said, "You do it." If there was still no response, she guided Marjorie to get out the item. Similarly, systematic instruction was planned and implemented for each of the IEP objectives.

Marjorie also had issues requiring planning ***positive behavioral support***. The challenging behavior that was not easily resolved with environmental arrangements at the beginning of school was Marjorie's chain of challenging behavior. This chain of behavior began with sitting on the floor or pulling away from the person offering assistance. Next she would spit and make raspberry sounds. This sometimes escalated into kicking or hitting. The team first instituted a crisis management plan of getting assistance to escort Marjorie from the class to sit in the hall and "cool off" when this occurred. They were not satisfied with this as a long term solution, but used it temporarily to resolve the crisis of the total class disruption (Similarly, other middle school students who were disruptive were asked to sit in the hall or were sent to the office). The team then began a functional assessment of the behavior by collecting information on the setting, people, and time the behavior occurred and its antecedents and consequences. They discovered that the behavior rarely occurred with some staff (e.g., the special education teacher, the music teacher) and never occurred with peers. In contrast, the behavior frequently occurred with substitutes, the paraprofessional, and her community job coach. To confirm this hypothesis, the special education teacher arranged to fill in for the paraprofessional on a couple of occasions in classes where the problem was occurring. Marjorie did not engage in the target behaviluring those times. The staff then began to analyze how the interactions across staff differed to determine how to gain cooperation from Marjorie from all staff. Marjorie's parents noted that an important antecedent to use was to "announce" each activity or skill to be performed in an enthusiastic, dramatic manner. The team also discovered the need for increased praise and to interrupt the chain of behavior by redirecting Marjorie to a preferred activity. Additionally, they noted that Marjorie could benefit from learning an age appropriate way to refuse assistance or an activity. They targeted teaching shaking her head "no." They also honored pulling back as a form of "no." Mr. Duran decided to tutor her on shaking her head "no." He also summarized the behavior support plan in a "Quick Reference" chart that he gave all staff who worked with Marjorie.

In Marjorie's community training, generalization was planned by selecting a variety of stores that represented the range of stimulus and response variation in her community. She alternated days in community based job training and purchasing. On the days that she did purchasing, the instructor took her to one of the 5 stores that provided this variety. Once a month, he took her to a novel store to see if she generalized her skills from her general case instruction.

OUTCOMES FOR STUDENTS FROM LOW INCIDENCE POPULATIONS

The assessment and educational supports described in this chapter were focused on enhancing quality of life for students from low incidence populations. Ferguson and Ferguson (1993) have described the primary dimensions of adulthood as autonomy, membership, and change. An adult with autonomy is economically self-sufficient, has self-determination, and a sense of completeness at having arrived at adult status. In contrast, we know that many individuals from low incidence populations are at high risk for unemployment and may not live in a place or with people they have chosen. Adult day programs and group homes may provide programming that is indistinguishable from their school aged program. They may have few opportunities to experience belonging to a social network of people other than family and paid staff and may experience little variety in their daily routine.

In contrast, in recent years research has shown that individuals with severe disabilities can work jobs in the community at minimum wage or above. Supported living options have been created where people with severe disabilities' preferences are identified and honored for where and how to live. Inclusive leisure opportunities are increasing

social networks. To achieve these enhanced opportunities, the school aged program needs to be focused on the individual student's priorities, family preferences, and inclusive opportunities. Transition planning will be essential in translating these values into adult opportunities (Wehman, 1996).

In summary, this chapter has described a noncategorical approach for assessment and planning and developing comprehensive educational supports for individuals from low incidence populations. This approach was based on meeting students' educational needs for person centered planning, self-determination, social networks, and opportunities to learn in inclusive settings at school, work, and in the community. For more information, the reader is encouraged to utilize the references given in this chapter.

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Developing Effective Program Plans for Students with Disabilities

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Chapter 9

INTRODUCTION

In recent years behavioral support for students with challenging behavior has witnessed a considerable shift. The catalyst for this shift can be found in a number of theoretical papers that directed our focus in intervention development toward the discovery of environment-behavior interactions (e.g., Bijou, Peterson & Ault, 1968; Carr, 1977). These important and influential papers reasserted that in order for an intervention to be effective and durable over time, it had to encompass much more than simply a strategy resulting in the suppression of undesirable behavior. Instead, it was recognized that efforts need to be directed toward acquiring a complete understanding of the array of variables that influence whether or not an individual will engage in a particular behavior. This includes identifying: a) events that may occur immediately prior to a behavior (antecedents) that set the occasion for that behavior to occur, b) events that occur immediately after a behavior (consequences) that serve to maintain the behavior, c) and events that occur earlier in time (setting events or establishing operations) that increase the likelihood of a behavior occurring under circumstances that otherwise may not be associated with the behavior. Information of this nature allows behavioral support teams to develop effective and efficient interventions that are likely to produce meaningful and durable changes in the lives of individuals with challenging behaviors.

Central to the shift in our approach to behavioral support has been the emergence of functional assessment and functional analysis approaches (e.g., Dunlap, Kern-Dunlap, Clarke & Robbins, 1991; Iwata, Dorsey, Slifer, Bauman & Richman, 1982; Lalli, Browder, Mace & Brown, 1993; Northup et al., 1991). Functional assessment/analysis strategies include specific methodologies for identifying the environmental variables that influence whether or not a specific behavior will occur. Initially, these procedures were developed and applied only with individuals with severe disabilities (e.g., Carr & Durand, 1985; Iwata et al., 1982). In recent years, as their value and potency have been increasingly appreciated, their applications have been expanded to include individuals with moderate and mild disabilities. In addition, although early applications of functional assessment/analysis procedures were analog in nature, recent studies have demonstrated their practicality in natural settings, including classrooms.

The purpose of this chapter is to describe the application of functional assessment/analysis procedures with individuals with mild to moderate disabilities in educational settings. In the first section, we delineate the conceptual framework that underlies a functional approach to challenging behavior. In the next section, we provide an overview of the purpose and process of functional assessment and functional analysis. This section also describes several different methodological approaches. In the following section, we provide a detailed description of a model we developed for conducting functional assessments in educational settings. Finally, we provide case illustrations of the application of this model.

To avert confusion, it is important to provide some clarification on terminology. The terms "functional assessment" and "functional analysis" have caused some confusion. Functional assessment refers to the broad strategies used to identify variables associated with occurrences of a target behavior. This may include a range of information gathering procedures such as interviews, scatterplots, and direct observations. The term functional analysis has come to be reserved for an experimental analyses, in which environmental events are systematically manipulated to observe their replicated and causal influence on a target behavior (Iwata, Vollmer, & Zarcone, 1990; O'Neill, Dunlap, & Horner, 1991). A functional analysis may be viewed as an optional component of a functional assessment—one that is crucial for research, but relevant for practice only in the more severe and challenging of circumstances.

CONCEPTUAL FRAMEWORK

Over the years, social attitudes toward educating individuals with challenges have become increasingly inclusive. That is, there has been a philosophical shift away from the practice of excluding children with disabilities from

regular educational settings. Accompanying this philosophical shift has been the ratification of public laws requiring the provision of educational and other services to all children (i.e., The Individuals with Disabilities Education Act; P. L. 105-17).

As individuals with diverse skills, needs, and learning histories become a part of the system of general education, educators have come to recognize the need for alternative approaches to accomplish the goal of developing independent, self-sufficient citizens. In fact, since the Individuals with Disabilities Education Act (formally the Education for All Handicapped Children Act) was initially ratified in 1975, it has required that *individualized* educational programs be written for each eligible child. The significance in this legislation is the understanding that a standardized curriculum is not necessarily appropriate for all children. Pragmatically, this means that the educational curriculum must be tailored to accommodate each child's needs. Functional assessment and functional analysis approaches provide the tools to do just that.

There are several assumptions that underlie a functional approach to individualized program development. The first is that challenging behavior serves a function. A great deal of research has demonstrated that challenging behaviors do not occur "out of the blue." Instead, challenging behavior is viewed as purposeful and meaningful for a child. In other words, there is an underlying reason that a child has for engaging in challenging behavior. Likewise, challenging behavior will continue to occur as long as it is successful in accomplishing the purpose for which it was intended. For example, Michael is a student who craves attention from his peers and he engages in disruptive classroom behavior to solicit such attention. Whenever he disrupts, his peers giggle and laugh. Michael's disruptive behavior is likely to persist as long as peers continue to provide attention, particularly if he is unable to solicit peer attention in other more appropriate ways.

A second and closely related assumption is that behavior is governed by the context in which it occurs. Within educational settings, the context in large part encompasses curricular requirements and instructional procedures that determine a student's educational program. Numerous studies have documented a broad array of curricular features that exert control over student behavior. The significant role that curriculum can assert was broadly demonstrated in a study by Ferro, Foster-Johnson and Dunlap (1996). These authors examined curricular features of approximately 280 students enrolled in special education rooms. The data showed significant correlations between the quality of curricular activities (i.e., age appropriate, functional, preferred) and students' challenging behaviors.

Considering the basic tenet that challenging behavior occurs within particular contexts and for purposeful reasons, successful amelioration is dependent upon an understanding of the context and purpose for behavior. Such an understanding requires the identification of functional relationships between a student's behavior and events or conditions in the student's environment. Functional relationships can be articulated as hypotheses regarding environmental variables that predict or govern the occurrence or nonoccurrence of challenging behavior. Uncovering functional relationships for the purpose of hypothesis development is the essence of the functional assessment process.

There are two general categories of functional relationships, each of which relates to operations of reinforcement. The first pertains to antecedent or contextual events. This group of events may be viewed as circumstances that set the occasion for and serve as triggers evoking undesirable behavior. The following hypotheses specify examples of antecedent functional relationships: *Sam is likely to be off task when he is required to engage in difficult work for long periods of time (over 15 minutes), but he is rarely off task when assignments are brief (less than 10 minutes)*; *Susan often talks out when her teacher is attending to other students; however, she seldom talks out when the teacher is in close proximity or is frequently attentive to her*; and *Jin may aggress toward his peers during competitive athletics, but he never aggresses during cooperative athletic games*. As these hypotheses illustrate, this category of functional relationships describe contexts in which challenging behaviors are likely to occur as well as contexts in which the behaviors are unlikely to occur.

The second category of functional relationships pertains to consequences. Consequences refer to contingencies of reinforcement that operate upon a challenging behavior and function to maintain that behavior. These types of reinforcement contingencies serve either "to get something" (such as attention, a preferred item or activity) or "to avoid or escape something" (such as an unpleasant assignment or the presence of a disliked classmate). The following hypotheses illustrate the category of consequences: *Tiffany aggresses during play group because her peers give her the toys she wants*; *Alex is disruptive during difficult assignments because when he disrupts he is sent to time out and is able to avoid his work*; and *Frank makes faces and talks out during story time because his peers pay attention to him when he does so*. These examples suggest

events following the behavior that serve as reinforcers, maintaining the behavior.

A third category of events that influence behavior is setting events or establishing operations (Michael, 1993). It is sometimes the case that challenging behaviors occur inconsistently. That is, a student will exhibit undesirable behavior during a particular activity but not on other occasions, even though the context is seemingly identical. In this case, it may be that an event occurring at an earlier time or a particular environmental circumstance is influencing behavior. Such events or circumstances are referred to as setting events or establishing operations. Establishing operations change the potency of a reinforcer or punisher. They may include a wide range of variables such as skipping breakfast, allergies, a crowded classroom, a noisy assembly, etc. The following examples describe how establishing operations may influence behavior. *Although Carla finds math to be a difficult subject, she generally completes her assigned work without incident. However, on occasions when she has not slept well the previous night, she has increased difficulty concentrating and math is particularly difficult. Thus, in the context of the establishing operation of sleep deprivation, math work becomes more punishing. Consequently, off-task behavior is likely to occur.*

Juan generally has few problems in school. However, on occasion Juan and his peers get into fights on the school bus prior to school. Under these circumstances, when arriving to class, unsolicited negative comments from peers may evoke an aggression. In this case, a morning fight on the bus (establishing operation) results in a generally innocuous peer comment becoming very punishing.

In the current chapter, a disproportional amount of attention will be devoted to antecedent and contextual events for several reasons. First, comparatively little attention has been paid to this category of functional relationships. Instead, there has been an overwhelming focus on consequences. In classroom settings, a large part of each student's day is characterized by instructional expectations. Consequently, it is often the case that instructional demands function as antecedents for undesirable behavior. This is supported by a growing literature documenting a direct link between challenging behavior and a variety of academic expectations. The modification of antecedent curricular events exemplifies a proactive approach to intervention. Careful and individualized construction of a student's curriculum decreases the likelihood that undesirable behavior will occur and increases the likelihood of desirable behavior. In addition, research suggests that such a curriculum will be preferred by students and can increase positive affect and desirable attitudes toward school (e.g., Kern, Childs, Dunlap, Clarke & Falk, 1994).

Proactive intervention strategies increase opportunities to teach alterative appropriate behaviors. Modifying antecedent or contextual events that set the occasion for behavior to occur often results in immediate decreases in undesirable behavior. The absence of undesirable behavior creates a circumstance in which desirable behavior can be taught more readily. Once students have a repertoire of appropriate behavior, a standard or traditional curriculum is easier to reintroduce.

Another reason for this chapter's focus on antecedent and contextual events is that setting events and establishing operations are difficult to identify and are less clearly understood. Further, it may be beyond the purview of educational personnel to influence some key establishing operations. This is not to suggest that educators should neglect such influences. A truly comprehensive plan of behavioral support addresses a child's functioning in all domains in which the child interacts. It is important to make an attempt to identify and modify events, such as lack of sleep, that interfere with a child's optimal functioning. However, when (or if) it is not possible to influence arenas outside of the immediate school environment, or as change is occurring, educators' efforts may be more effective by making accommodations in the classroom setting.

OVERVIEW OF FUNCTIONAL ASSESSMENT AND FUNCTIONAL ANALYSIS

When an individual engages in behavior that is considered problematic, an intervention is typically developed. Historically, these interventions have tended to be reactive in nature, with the focus mainly on the topography or form the behavior takes (e.g., Carr, 1994; Knitzer, Steinberg & Fleish, 1990). For example, a certain behavior, such as hitting a peer, meets with a particular prearranged consequence, such as loss of recess. This approach to intervention dispensation has had only marginal success (e.g., Carr, Robinson, Taylor & Carlson, 1990; Scotti, Evans, Meyer & Walker, 1991). The primary explanation for these unsatisfactory outcomes is that the intervention acts to suppress undesirable behavior, typically through the use of punitive procedures. A host of research studies has informed us of the generally inadequate and short-lived success of this type of intervention (for a review see Guess, Helmstetter, Turnbull & Knowlton, 1987).

In the past decade, functional assessment procedures have emerged as an effective approach to behavioral sup-

port. These procedures have allowed practitioners to develop interventions that are significantly more effective than conventional interventions (e.g., Horner, 1994). This is so because the focus is on behavior-environment interactions. By identifying the context in which challenging behaviors occur, environmental manipulations can be made to decrease the likelihood that undesirable behavior will occur. In addition, alternative appropriate behaviors can be taught to replace the undesirable behaviors.

Functional assessment can be generally defined as a process for identifying relationships between an individual's behavior and events or conditions present in the individual's environment. After a functional assessment has been completed, one should be able to predict, with a high degree of confidence, the conditions under which a target behavior will and will not occur. This information directs interventionists toward an intervention that is directly linked to the environmental events associated with that behavior. For example, if an assessment reveals that a student engages in challenging behavior only during writing assignments, intervention would be directed toward modifying aspects of those assignments that are problematic. On the other hand, if problematic target behaviors occur only during recess, intervention might focus on specific identified social skill difficulties.

Although the frequency of interventions based on functional assessments and analyses has increased over the last 15 years (Pelios, Morren, Tesch & Axelrod, 1997), demonstrations of this process in natural settings and across a variety of disabilities and behaviors is still limited (e.g., Dunlap & Childs, 1996; Iwata, 1994). Nonetheless, the literature provides a range of exemplars of assessment-based interventions. Assessment-based interventions refer to interventions that are individually crafted utilizing information from some type of prior assessment.

As an early example of assessment-based intervention, Schloss, Kane and Miller (1981) evaluated characteristics and conditions at school and home of three 13-year-old students. The students attended regular and special education classrooms and were described as having behavioral disorders. Questionnaires were developed to identify factors that might be associated with poor attendance. For example, parents were asked what the child does when he/she stays home, what the child likes and dislikes about school, whether the parents encourage the child to attend school, etc. A questionnaire was also administered to the student that obtained similar information. Finally, a teacher questionnaire solicited information about predictability of school attendance, activities the student enjoys, efforts that have been made to increase attendance, etc. This information was then used to develop individualized attendance motivation programs.

Assessment-based interventions were also developed in a study by Knapczyk (1988). Participants were two students, age 13-15, enrolled in noncategorical special education classrooms. All of the students engaged in aggressive behaviors toward their peers. In order to identify problematic contexts and interactions, students were observed during social situations. For example, data were collected on whether the students engaged in appropriate initiations of interactions, object requests, etc. Videotaped exemplars of the students during social situations were used for training purposes. Individualized interventions included modelling, rehearsing, and receiving feedback on specific problematic interactions.

Each of the interventions described above utilized some type of assessment information to create an individualized intervention. It should be clear from the above examples that assessment information can be derived from a variety of sources and in a multiplicity of ways. As practitioners have recognized the importance of assessment information for intervention development, standardized methodologies have been developed and refined. These methodologies fall into three general categories: interview, functional analysis, and descriptive analysis.

The ***interview*** is the most common method of information gathering used to conduct a functional assessment. Interviews are administered to individuals who are most familiar with the individual engaging in undesirable behavior. The objective of an interview is to specifically define the target behavior, obtain information about circumstances that are associated with occurrences and nonoccurrences of the target behavior, and delineate how individuals respond to the problematic behavior.

Interviews may be very informal, where information is obtained in a conversational manner. On the other hand, formal interview formats include structured questionnaires (e.g., Dunlap et al., 1991; O'Neill et al., 1997) and rating scales (e.g., Durand & Crimmins, 1988).

More recently, as the process of functional assessment has proven to be pertinent with individuals of higher cognitive functioning, the value of information solicited directly from the individual him or herself has been recognized. The Student-Assisted Functional Assessment Interview (Kern, Dunlap, Clarke, & Childs, 1994) provides a format for obtaining information from students. This interview asks the student to identify both curricular events that he or she believes are associated with incidents of a target

behavior and strategies for modifying the curriculum to decrease the frequency of the target behavior. O'Neill and colleagues (1997) have also added procedures for obtaining information directly from students.

Perhaps the most significant strength of interviews is that they allow one to obtain a large amount of information in a limited amount of time. It is often not feasible to directly observe an individual in numerous different settings across lengthy periods of time. An interview enables one to rapidly obtain information about possible contextual events associated with a target behavior. Information about a large variety of antecedent and consequent events may be synthesized by care providers. However, a substantial limitation is that they rely on the subjective recollections of care providers, leaving potential for inaccuracy.

An additional strategy with which to conduct a functional assessment is a ***functional analysis***. The first comprehensive methodology for identifying behavioral function in this way was developed by Iwata and colleagues (1982). Using this prototype, individuals are exposed to four experimental conditions, each for 10 minutes. Exposure to these conditions occurs in random order using a multielement design. One condition resembles play, which is free of demands and access to preferred toys and frequent attention is provided. Because this situation is expected to result in low frequencies of problematic behaviors, it serves as a "control" or comparison condition. In a second condition, task demands are placed on the individual. The demand is withdrawn contingent on the occurrence of challenging behavior. If individuals are observed to engage in relatively high rates of challenging behavior in this condition, the behavior is presumed to serve an escape function. In a third condition, adult attention is diverted. Attention is then provided contingent on challenging behavior. Elevated rates of challenging behavior under this circumstance suggests an attention function. A final condition is "alone" in which toys and people are absent. Challenging behaviors observed during this condition are presumed to have a self-stimulatory or biologic function.

The functional analysis methodology developed by Iwata et al. has enhanced our understanding of challenging behavior and has resulted in the design of more effective interventions. However, a limitation of this approach is that it is often time consuming. To address this issue, an alternative variation of this methodology was developed by Wacker and colleagues (1990). This approach, referred to as brief functional assessment, was developed in an outpatient clinic setting. The two phase analysis was designed to be conducted during a typical 90 minute evaluation. Using a brief multielement design, individuals are exposed to assessment conditions for 10 minutes. Prior to the assessment, hypotheses regarding behavioral function are developed based on historical information and the results of the Motivation Assessment Scale (Durand & Crimmins, 1988). Based on hypothesized behavioral function, conditions to be assessed are predetermined. Most assessments include alone, escape, and attention conditions. During the first phase of the analysis, reinforcement (e.g., attention, withdrawal of demand) is provided contingent on the occurrence of target behaviors in the same manner as the Iwata et al. model.

During the second phase of the brief functional assessment (Wacker et al., 1990), each condition is replicated. However, the reinforcement contingency (i.e., escape, attention) is provided for appropriate behavior (e.g., manding) rather than inappropriate behavior. The time required to complete the brief functional assessment is considerably less than the functional analysis. However, a limitation is that it may not be as adept at identifying a behavioral function. In a study evaluating the efficacy of this methodology with 79 individuals, a behavioral function was identified approximately 50% of the time (Derby et al., 1992).

There are two notable limitations of the methodologies described above. One is that due to their analog nature, one can never be certain that the variables identified to be associated with a target behavior are the same as those in the natural setting. For example, in educational settings in particular, peers often have a significant influence on the behavior of their classmates (e.g., Lewis, Scott, & Sugai, 1994). The influence of variables such as these cannot be evaluated in an analog setting. Another limitation is that they may not be practical, particularly in educational contexts. It is often not possible or feasible to remove students from the classroom to conduct an analysis in an alternative setting. Further, teachers are often unwilling to intentionally provide reinforcement (e.g., escape from an assignment) contingent on inappropriate student behavior.

A divergent approach, ***descriptive analysis***, (e.g., Lalli, Browder, Mace & Brown, 1993) addresses these limitations. This methodology conducts direct observations in an individual's natural environment. During ongoing observations, events that precede and follow target behaviors are noted. Information such as time of day, setting, people present, etc. may also be recorded. There are several structured assessment instruments and strategies for gathering and analyzing descriptive data. O'Neill and colleagues (1997) offer the Functional Assessment Observation Form. This form provides a structured format for coding occur-

rences of target behaviors, predictors, perceived functions, and actual consequences. Using a scatterplot (Touchette et al. 1985), data can be partitioned and plotted along relevant dimensions (e.g., class periods, time of day, etc.). This method of data analysis provides a visual display to assist with identifying events or times of the day that are associated with the presence or absence of challenging behavior.

Descriptive analyses should allow observers to develop hypotheses regarding antecedent and subsequent events that are associated with a target behavior. However, it should be cautioned that data obtained in this manner are correlational in nature. Unlike functional analyses, environmental variables are not intentionally and systematically manipulated. Thus, the observations do not yield definitive findings.

Each of the strategies described above, interview, functional analysis, and descriptive analysis, has strengths and limitations. Each has been used differently depending on the purpose of the assessment (e.g., addressing a specific research question vs. intervention development), the complexity of the behavior, and the resources available. Many practitioners and interventionists have found it most productive to use a combination of the strategies described above. Typically, interviews are administered first to gather preliminary information and identify a focus for the assessment. Then, descriptive observations are conducted. Finally, some variation of a functional analysis is conducted to confirm hypotheses.

A recent and promising model that utilizes a variety of assessment strategies was described by Vollmer, Marcus, Ringdahl & Roane (1995). This model proposes progressing from less intrusive to more intrusive assessment strategies as needed to identify behavioral function. Although all of the assessments in this particular study were conducted in analog settings (with the students removed from their classrooms), the general model of moving along the dimension of intrusiveness has the potential of being a feasible, effective, and time efficient prototype.

To date, demonstrations of the functional assessment process in educational [illegible]gs are limited. This is partly because the process was initially developed for use with individuals with severe to profound mental retardation. The initial demonstrations occurred in institutional and residential settings. Behaviors of interest tended to be severe and life threatening, such as self-injury.

Recent interest has turned toward applying functional assessment methodologies in naturalistic settings, such as classrooms. This is because the methodology has proven superior in the development of effective and durable interventions. In fact, the strength of functional assessment has been so well demonstrated that many states (California, Florida, Pennsylvania) have made it a required element of behavioral support plans, and it is stipulated in the recent reauthorization of IDEA. The following section provides a specific description of the steps in conducting a functional assessment.

CONDUCTING A FUNCTIONAL ASSESSMENT

This section presents a model of functional assessment

Figure 1: Steps in Conducting a Functional Assessment

Hypothesis Development

Purpose:
To identify events or stimuli that are regularly associated with occurrences of a target behavior.

Method:
Information gathering
Hypothesis development

Hypothesis Testing

Purpose:
To empirically test hypothesis statements prior to implementing intervention.

Method:
Manipulations

Intervention

Purpose:
To develop an effective intervention based on functional assessment information.

Method:
Link assessment information to intervention

Ongoing Monitoring and Modification

Purpose:
To assure behavior improvements maintain.

Method:
Ongoing observation or report;
Redesign support plan, if needed

that we developed particularly for use in school settings (Dunlap & Kern, 1993; 1996; Dunlap et al., 1991; Kern et al., 1994). We and others have used it successfully numerous times. The model has also been extended to students with a variety of diagnoses (e.g., ADHD, emotional/behaviorally disordered, at risk, nondisabled) and challenging behaviors (e.g., off-task, disruptive, inappropriate peer interactions), with equally beneficial results.

Before describing the model, it is important to emphasize that a functional assessment is not intended to be entirely prescriptive. A functional assessment provides information about circumstances that set the occasion for or maintain an undesirable behavior. This information guides interventionists toward a general class of interventions that are reasonable. Rather than a single intervention, there may be a variety of curricular intervention options available for any given situation. The behavioral support team must create a plan considering factors such as likelihood of success, preferences of those involved, and ease of implementation.

In our experience, the model is most effective when it is carried out using a collaborative or team approach, particularly if a student's behaviors are complex and persistent. Each individual brings unique experiences, views and interpretations. Involving a team of people increases the chances that all possible variables will be examined (Eno-Hieneman & Dunlap, in press).

The focus of the model is curricular variables. We refer to curriculum very broadly to include the content of instruction, the setting and materials, the manner in which lessons and instructions are scheduled and presented, and physical arrangements that may influence a student's behavior. This approach to behavioral support is about designing the school environment so that appropriate behavior is encouraged while inappropriate behavior is discouraged. Thus, this model seeks to identify curricular variables that can be modified to accomplish this goal.

There are some restrictions in the range of variables that can be considered in this model. The first is that variables identified in hypothesis statements must be able to be manipulated in the classroom setting. For example, the hypothesis "Sam engages in off-task behavior because he has ADHD" describes a variable that cannot be manipulated. Conversely, the hypothesis "Sam is more likely to engage in off-task behavior when the classroom is noisy" specifies a factor that can be evaluated and considered as part of a classroom intervention.

The second characteristic of variables considered for modification is that they must be observable. For example, although a teacher or school psychologist may believe that Sally engages in aggression because she has a chemical imbalance, this is not something that can be observed. On the other hand, the hypothesis "Sally engages in aggression during academics when she is given difficult assignments" is observable and manageable. While the possibility of a chemical imbalance may be important to investigate (by an appropriately-trained physician), it is beyond the scope and prerogative of classroom professionals.

Prior to beginning the assessment, the target behavior(s) must be agreed upon and defined. Behaviors selected for intervention should be ones that are disruptive to a student's learning or interactions or will interfere with the student's well being in the future. The target behavior should be defined in a manner that is clear and concise and lends itself to precise observation.

The process of functional assessment consists of four phases. These phases are depicted in Figure 1. Each phase is described in the paragraphs below.

Hypothesis Development

During the Hypothesis Development Phase, information is gathered in order to formulate hypotheses about curricular variables influencing a student's behavior. The number of potential variables influencing a student's behavior can be huge. Thus, this phase should continue, narrowing the possibilities, until one or a few variables are identified.

There are several methods that can be used to obtain information necessary for hypothesis development. Typically, we utilize as many as possible. Multiple sources of information help to confirm a hypothesis or suggest that alternative hypotheses need to be developed.

One method of information gathering is the interview. Interviews are generally administered to individuals who know the student well. It is wise to interview more than one informant to obtain different perspectives. We typically interview at least two members of the school staff (e.g., teacher, teaching assistant, school psychologist, etc.) and at least one member of the student's family.

There are two critical pieces of information that an interview should seek to obtain. These are: 1) What are the specific environmental circumstances that are most likely to be associated with occurrences of the target behavior? and 2) What are the specific environmental circumstances that are seldom or never associated with occurrences of the target behavior? Information about both dimensions is needed to identify problematic variables and to restructure a more favorable environment.

Depending on the nature and complexity of a student's

behavior challenges and the reporting skills of the informant, interviews may be brief and simple or very detailed and structured. There are several structured interviews available commercially. The Behavioral Diagnosis and Treatment Information Form, developed by Bailey and Pyles (1989), obtains information regarding situational variables and setting events, physiologic variables, environment variables, etc. The Functional Analysis Interview (O'Neill et al., 1997) is a comprehensive and detailed format that obtains information not only about the target behavior and events that may trigger it, but also about adaptive behavior, reinforcers, etc. that may be valuable in developing an intervention.

As mentioned in the previous section, application of this methodology with children with milder disabilities and perhaps less complex behavioral challenges has suggested the potential of alternative strategies of gathering information. One notable strategy is increased student involvement in the process. If willing and able, it is frequently most apropos for students themselves to identify their likes and dislikes. The Student Assisted Functional Assessment Interview (Kern et al., 1994) provides a structured format for soliciting information from students. The interview consists of four sections. The first section asks a series of questions designed to ascertain whether a target behavior may serve to obtain attention or a preferred item/activity or to escape from an nonpreferred task. Section II solicits information directly about the target behavior, such as when and why the child believes he/she has the most/least problems with the target behavior. Section III lists school subjects and asks the student to report, on a Likert scale, how much he or she likes each one. The final section obtains more detailed information about each school subject and how it could be modified to decrease the target behavior. This interview does not take long to administer and has been shown to yield information crucial to hypothesis development (e.g., Kern et al., 1994; Ervin et al., in press).

A second method of information gathering is reviewing archival records. Students' records often provide historical information about the frequency and duration of the target behavior as well as associated circumstances or events. They may also indicate medical or other physiologic variables that are relevant. In addition, records often detail interventions that have been successful or unsuccessful. This may assist with future intervention planning.

A final strategy that provides information to facilitate hypothesis development is direct observation. At this point in the process, observations are descriptive in nature, occurring in the context of ongoing activities. These observations may serve to support information obtained during interviews and record review or they may suggest alternative hypotheses. Observations may be brief or very extensive. If information already obtained is very specific and identifies a finite context (e.g., sharing during play time) occasioning the target behavior, then observations may be limited. However, if the target behavior occurs throughout the day and the circumstances surrounding its occurrence are vague, then observations may need to be more inclusive.

There are several methods of coding events that are directly observed. Perhaps the most simple is A-B-C recording (Bijou, Peterson & Ault, 1968), where occurrences of a target behavior (B), antecedents or events that preceded the behavior (A), and consequences or events following the behavior (C) are noted. The Functional Assessment Observation Form (O'Neill et al., 1997) provides a structured format for coding observed events. The form is structured so that the observational period can be broken down into specific time periods. Occurrences of identified target behaviors are recorded. In addition, common predictors (e.g., demand/request, transition, etc.) of challenging behavior and perceived functions (e.g., attention) are listed which the observer codes. Finally, actual consequences are described.

Once ample information has been gathered, hypotheses are formulated. Hypotheses represent "informed guesses" about the most likely events associated with occurrences and nonoccurrences of the target behavior. Hypotheses should describe curricular manipulations that are observable and testable in the classroom setting. The following are examples of hypotheses that have been formulated regarding student behavior and curricular modifications: "Jill is better behaved when she is engaged in large motor as opposed to fine motor tasks"; "Jill is better behaved when her fine motor and academic requirements are brief as opposed to lengthy" (Dunlap et al, 1991); "Eddie is more likely to be engaged in academic tasks that require problem-solving skills rather than drill and practice type exercises"; "Eddie is more likely to be engaged academically when provided with multiple brief tasks during an academic session rather than a single long task" (Kern et al., 1994).

Hypothesis Testing

It is generally advantageous to validate hypotheses prior to implementing an intervention. Hypotheses can be validated by conducting direct manipulations of an implicated variable and measuring whether the manipulations result

in consistent changes in the target behavior. Manipulations provide direct and empirical evidence of the accuracy of hypotheses. Manipulations are also a succinct method for practitioners to determine how effective curricular modifications are likely to be prior to committing to possibly long-term and complex changes within their classroom.

Manipulations are typically conducted using a reversal, withdrawal, or alternating treatments design. This is done by observing the child's behavior under typical classroom conditions and when the curricular modification is in place. We typically observe the student across at least four days, alternating days when the intervention is in place with days when no intervention is in place. Systematic behavioral changes in the expected direction provide support for the hypothesis.

It should be pointed out that although this type of experimental testing is advised, it is not always possible within the context of a classroom situation. The most important outcome of the functional assessment process is the design of a curriculum that results in improved student deportment. This can be accomplished without formal hypothesis testing. For example, an intervention can be developed based on assessment information. Evaluation of the efficacy of the intervention once it has been implemented can serve as a test of the hypotheses. If the intervention does not result in acceptable student behavior, then the hypotheses can be modified and the intervention revised.

Intervention

The desired outcome of a functional assessment is information that can be translated into an effective intervention. The previous two phases, hypothesis development and hypothesis testing, should clarify conditions under which a student is likely to engage in challenging behavior and conditions under which challenging behavior is unlikely to occur. An intervention should seek to increase stimuli or conditions that produce desirable behavior and remove or modify stimuli or conditions that produce challenging behavior.

It is important to point out that an intervention should not simply remove those stimuli or conditions that are associated with challenging behavior. For example, in educational environments there are a large number of academic expectations placed on students. Consequently, challenging behavior frequently occurs to escape or avoid such demands. Interventions should not just remove demands associated with target behaviors. Even though this may eliminate challenging behavior, it is not usually in the long-term best interest of the student. Instead, the aim should be to modify features of the curriculum while maintaining a student's educational goals. For example, the results of a functional assessment conducted with Jill (Dunlap et al., 1991) showed that lengthy assignments (15 minutes or more) were associated with high rates of challenging behavior while brief assignments (5 minutes) were associated with low rates of challenging behavior. In designing an intervention for Jill, we did not require that she only complete 5 minutes of work during the day. Rather, we restructured her day so that 5-minute work periods were alternated with other activities, such as exercise, listening to music, etc. Likewise, Eddie's assessment showed that he was frequently off-task when given written assignments but was rarely off-task during nonwritten assignments (Kern et al., 1994). Spelling was a particular problem for Eddie because a significant amount of written work was required. Because Eddie's educational goal was to learn to spell words, the goal was maintained by allowing him to practice spelling his words orally (into a tape recorder) or write them on the computer.

There are a large number of interventions that may be suitable for any given situation. The key to selecting or developing a successful intervention is assuring that it is linked to the assessment information. In addition, because challenging behavior is often complex, an effective intervention may need to be comprehensive, including multiple components. For example, an intervention may include shortening work periods, offering a choice of assignments, decreasing the assignment difficulty, and providing frequent teacher monitoring.

Ongoing Monitoring and Modification

Many events change throughout a child's educational career. There are a number of school related events that periodically vary. Staffing typically changes at least yearly, scheduling may change throughout or across school years, academic expectations may increase as the year progresses, a student's classmates may change, etc. In addition, personal events may fluctuate in a student's life. For example, in addition to child maturation the student's family may move, a parent may remarry, a new sibling may enter the household, etc. Each of these events may alter the effectiveness of a behavioral support plan. Thus, ongoing monitoring is a critical component of behavioral support.

If a target behavior begins to reemerge, or if other undesirable behaviors begin to occur, the support plan must be modified. It is important that modified plans also be hypothesis driven. It is most likely that additional assessment information will need to be gathered to determine variables that are currently associated with the student's current challenging behavior.

APPLICATIONS OF FUNCTIONAL ASSESSMENT

The previous section delineated the basic steps in conducting a functional assessment. In this section we illustrate the process by describing two case examples. The first example, Joey, will be presented in considerable detail in order to explicate the process. Joey's assessment and case study was conducted by Dr. Ruth Ervin as part of a doctoral dissertation at Lehigh University, and is scheduled for publication in the *Journal of Applied Behavior Analysis* (Ervin et al., in press).

Joey - A Case Illustration

Joey was 13 years old at the time of the assessment. He was in the seventh grade and had a Full Scale IQ of 98, according to the Wechsler Intelligence Scale for Children (Wechsler, 1991). Joey was diagnosed as having Attention Deficit Hyperactivity Disorder (ADHD). He met criteria for this diagnosis based on information obtained from his guardian, the ADHD Rating Scale-IV (DuPaul, Anastopoulos, Power, Murphy & Barkley, 1994), and the Attention Problems factor of the Child Behavior Checklist (Achenbach & Edelbrock, 1991). In addition, he met DSM-IV criteria for Oppositional Defiant Disorder (ODD). Joey was taking 20 mg of methylphenidate twice daily.

Joey attended a regular classroom on the residential campus of Boystown. In spite of a comprehensive token economy system utilized on the campus, Joey rarely attended to or completed his assigned work. Thus, it was decided that on-task would be his target behavior.

A collaborative consultation model was used throughout the assessment. Teachers and other relevant personnel participated fully in the process. Dr. Ervin met regularly with the teachers and assistants for evaluation and planning purposes and also served as a consultant. Hypotheses were collaboratively developed based on two sources of convergent information. For example, if the student interview implicated a particular variable and direct observations supported the implicated variable, an hypothesis was formulated.

During Phase I, Hypothesis Development, several interviews were administered. The Preliminary Functional Assessment Survey (Dunlap et al., 1991) was administered to Joey's teacher and the Student Assisted Functional Assessment Interview (Kern et al., 1995) was administered to Joey. In addition, the Behavioral Tracking Form (adapted from O'Neill et al., 1990) was used by the teachers. On rm, the day was broken into hourly blocks. Teachers recorded incidents of the target behavior, antecedent and subsequent events, and hypothesized function. To facilitate use of this form, teachers were asked to record a maximum of three events per hour. Finally, the consultant collected more detailed observational data. In addition to recording antecedent and subsequent events, the consultant also collected data on instructional variables (i.e., form or nature of instructions), task variables (e.g., type of task, difficulty of task), and setting events or establishing operations (e.g., physical structure of the classroom). Observations by the consultant were conducted during times and situations the teacher identified as particularly problematic.

Several pieces of valuable information were obtained from the interviews and observations that directed attention toward writing and resulted in the development of two hypotheses. During the student interview, Joey indicated that writing was a least favorite class. During the teacher interview, Joey's teacher confirmed that he was typically off-task during writing. She stated that her frequent prompts to begin writing were unsuccessful and his off-task behaviors frequently resulted in office referrals (once or twice weekly). Direct observations by the teacher and consultant confirmed these details.

The consultant's observations indicated that two activities were consistently required during writing class. The students began class with journal writing, lasting 5 to 7 minutes. This was followed by 20-25 minutes of story writing.

The first hypothesis and potential intervention was developed in the following manner. During the student interview, all of the subjects Joey indicated disliking required pencil and paper work. During the direct observations, although less problematic than writing, off-task behavior was observed during other pencil and paper tasks. Thus, it was hypothesized that Joey's off-task behavior might be an attempt to escape from tasks requiring pencil and paper writing.

To address this hypothesized motive, Joey's teacher recommended offering a computer for lengthy written assignments. Thus, the following hypothesis was developed: "Joey's on-task behavior will be increased when he is given the opportunity to complete long (20 minutes or more) writing tasks on the computer rather than by hand." In order that Joey not be singled out, several of his classmates were also provided the option of using a computer for story writing.

The second hypothesis resulted from the following information. When Joey was asked, during the student interview, what changes could be made so he would have fewer problems with off-task behavior during writing, he stated

he would do better if he were given more time to think about what he had to write. Joey's teacher affirmed that discussion about the topic prior to writing would be likely to contribute to Joey's active engagement. The teacher suggested that brainstorming with a peer might be an effective and nonintrusive strategy to accomplish this goal. Thus the following hypothesis was formulated: "Joey's on-task behavior will be increased when he is able to brainstorm with a peer prior to a short (5 to 7 minute) written task.

Once hypotheses had been developed, Phase II, Hypothesis Testing, was initiated. The two hypotheses were tested each writing period across six days. The first hypothesis was tested during lengthy assigned topical writing activities. Days in which Joey completed his assigned writing on a computer were alternated with days in which he completed the assignment with a pencil and paper.

The second hypothesis was tested during journal writing. Joey was paired with a peer and was instructed to brainstorm aloud about the journal topic for 2 minutes. Days in which Joey brainstormed prior to writing were alternated with days in which he did not brainstorm.

The results of the Hypothesis Testing Phase are shown in the first portion of Figure 2. When Joey completed his writing on a computer, the percentage of intervals he was on task was higher than when he completed his work by hand. Brainstorming also resulted in higher levels of on-task behavior than no brainstorming. Thus, both of the hypotheses were confirmed.

The next phase was Intervention. Based on the results of the Hypothesis Testing Phase, Joey's teacher opted to implement both interventions during writing class. Thus, brainstorming and computer writing were implemented on an ongoing basis. Prior to implementing the intervention package, baseline data were collected across four writing periods. Joey's on-task behavior was variable, with a downward trend. The mean percentage of intervals on-task was 68. After introducing intervention, on-task behavior increased, to a mean of 96%. A brief, one day reversal was implemented to assure that the intervention package was indeed responsible for the behavioral changes. During this reversal, on-task behavior decreased to 63%. Upon reintroduction of the intervention, on-task behavior once again increased (mean, 95%).

Desi - A Brief Case Example

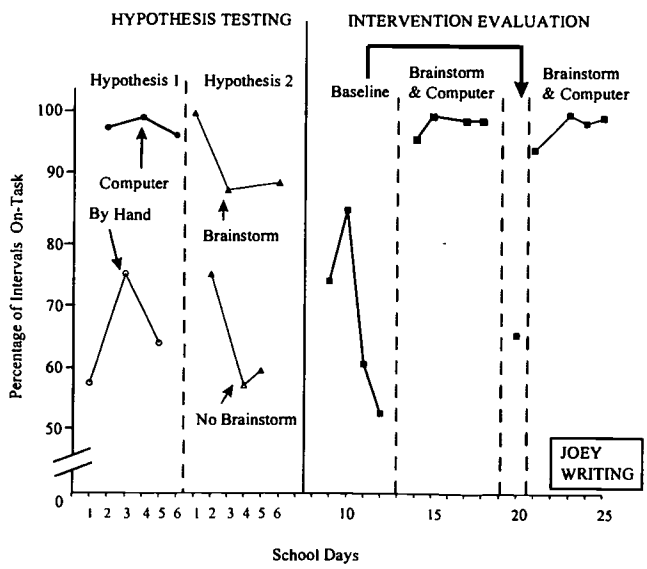
The next student we introduce is Desi, a 10-year-old fourth grader identified by the school system as experiencing emotional and behavioral disorders (Dunlap et al., 1993). Desi's intervention differed from Joey's because his undesirable behaviors involved interactions with others. Target behaviors identified by Desi's teacher and consultants were negative verbal or nonverbal responses to adult initiations, noise making, and off-task statements in an academic context.

During Phase 1, Hypothesis Development, a detailed functional assessment interview was administered with Desi's teacher. In addition, direct observations were conducted in the classroom context that was identified as most problematic. Direct observation data were collected on the frequency of target behaviors and events that were antecedent and subsequent to the target behavior, including teacher-student interactions.

Direct observations indicated that Desi's undesirable behavior was lower during times when he was provided with high rates of praise, but only when the praise described specific actions or accomplishments. Thus, the first hypothesis that was developed was "Desi's undesirable behavior will be reduced when the amount of specific praise is increased."

Data from the interview, confirmed by direct observations, suggested that Desi tended to lose track of his own behavior and the rules and guidelines that had been reviewed

Figure 2. Joey



Data from hypothesis testing and intervention evaluation for Joey (Ervin et al., in press). Reprinted with permission.

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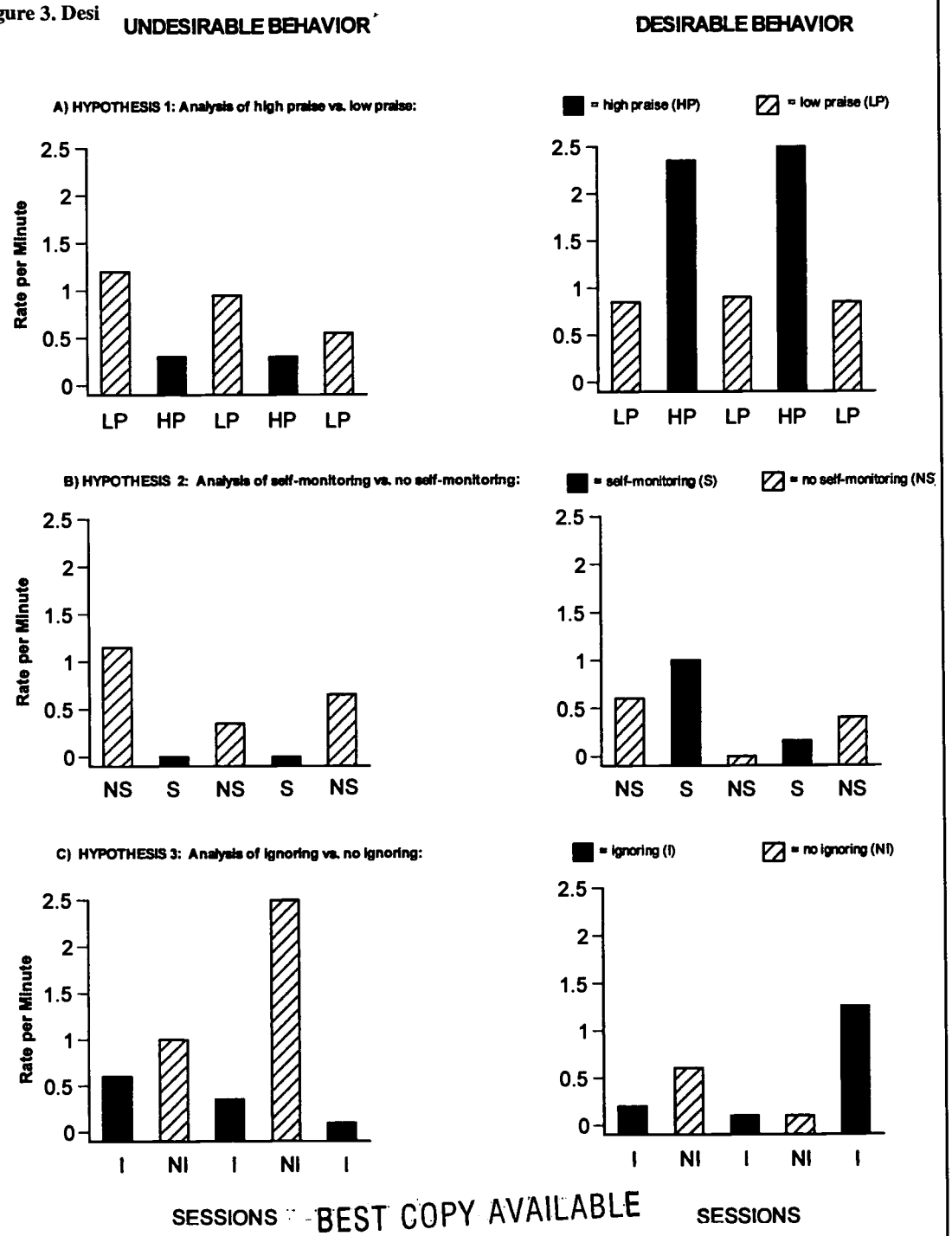
with him by his teacher. Therefore, it was also agreed that it would be in Desi's best interest to teach some self-control procedures consisting of evaluating and monitoring the appropriateness of his vocalizations. To this end, the hypothesis, "Desi's undesirable behavior will be reduced when he evaluates the appropriateness of his verbalizations" was developed.

Finally, the support team determined that attention by the teaching staff following inappropriate behavior appeared to be reinforcing the problematic interactions. Thus, it was hypothesized, "Desi's undesirable behavior will be reduced when staff ignore all undesirable behavior."

During Phase II, Hypothesis Testing, the accuracy of the three hypotheses was evaluated. Hypothesis testing was conducted across five days using a reversal design. Each of the hypotheses was confirmed (see Figure 3). An intervention was then developed based on the results of the hypothesis, which was implemented on an ongoing basis by Desi's classroom teacher (Phase III).

Figure 3. Desi



Data depicting the results of Desi's functional analysis (Dunlap et al., 1993). Testing was conducted to fy each of three hypotheses. Reprinted with permission.

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General Examples of Assessment-based Curricular Modifications

The school environment is comprised of a vast number of variables that can influence a student's behavior. Potential curricular modifications are many. The process of functional assessment can help identify the particular variables to modify for a specific behavior problem. The section below offers an overview of three categories of curricular modifications: those pertaining to the task content or task materials; those that involve the task presentation; and those that concern setting events or establishing operations.

Interventions that Modify the Task.

Features of the task can be associated with undesirable behavior. When a functional assessment identifies such features, the task can be modified to remove or ameliorate the offending feature. For example, task difficulty has been implicated in a number of observations. These studies indicate that when difficulty exceeds a student's skill level, challenging behaviors may be observed. Successful interventions can involve decreasing the level of skill required to complete the activity, providing appropriate assistance, or even reducing the frequency or duration of the task (e.g., DePaepe, Shores, Jack & Denny, 1996; McComas et al., 1996; Weeks & Gaylord-Ross, 1981).

The instructional medium has also been implicated as a variable contributing to behavioral challenges. For example, requiring excessive amounts of handwritten work, particularly with students experiencing fine motor difficulties, may increase the likelihood of undesirable behavior. Offering an alternative medium (e.g., computer, language master) has been an effective intervention (e.g., Kern et al., 1994).

Modifying tasks such that they have functional or meaningful outcomes has been associated with improved student deportment. For example, a handwriting assignment that requires repetitive copying or tracing of letters and sentences might lack relevance for the student and, thus, be a nonpreferred activity associated with problem behaviors. In contrast, a handwriting assignment that requests a letter to be written to a friend or a famous celebrity could be seen as meaningful, and accompanied by desirable behavior (e.g., Dunlap, Foster-Johnson, Clarke, Kern, & Childs, 1995; Foster-Johnson, Ferro, & Dunlap, 1994). This kind of task revision has been documented as beneficial for a variety of student populations (e.g., Clarke et al., 1995; Dunlap et al., 1995; Umbreit & Blair, 1997).

Interventions that Modify the Instructional Presentation.

Assessment procedures may also produce hypotheses that implicate aspects of the instructional presentation. Modifications in this category change some element of the task presentation, while the content remains the same. For example, opportunities to select from among more than one option of assignments has been demonstrated to reduce problem behaviors and increase engagement (e.g., Bambara, Ager & Koger, 1994; Cole, Davenport, Bambara & Ager, 1996; Cosden, Gannon & Haring, 1995; Dunlap et al., 1991; 1994). Similarly, the pace of instructional presentation has also been demonstrated to influence behavior. Generally, studies have shown that behavior can improve when instructions are delivered at a relatively brisk pace (e.g., Dunlap, Dyer & Koegel, 1983; West & Sloan, 1986), although optimal pacing varies across students and the decision to adopt a particular rate of presentation should be based on a preliminary, individualized functional assessment.

Other instructional presentation strategies demonstrated to improve behavior include task interspersal and task duration. In interspersal, a difficult task is interspersed within the context of a number of easy tasks. For example, if a student is learning multiplication facts and exhibits disruptive behaviors when confronted with new computations, problem behaviors often dissipate if the new tasks are embedded within a series of easy problems that have been learned (and mastered) previously (e.g., Kern, Koegel, Koegel & Dunlap, 1985). Task size or duration may also influence behavior. In some circumstances, lengthy tasks may result in higher rates of challenging behavior and lower engagement (e.g., Dunlap et al., 1991; Kern et al., 1994). Curricular modifications to address this variable include shortening the assignment length or providing periodic breaks.

Interventions that Modify Setting Events or Establishing Operations.

The final category of curricular manipulations pertains to setting events or establishing operations. In this case, events are identified that are conditionally linked to the occurrence of challenging behavior because they alter the motivational aspects that ordinarily govern the behavior's interaction with the environment. For example, failure to eat breakfast may impact a child's academic performance and, consequently, the child's motivation to escape the academic requirements by engaging in disruptive behavior. When such setting factors can be identified, school personnel can assure improved behavior by addressing the altered motivational context (e.g., the teacher can see that the child is given something to eat before proceeding with instruction). Likewise, if particular seating arrangements tend to set the occasion for off-task behavior during academic instruction, teachers can carefully arrange assigned seating to decrease interactions between peers contributing to off-task behavior (e.g., Umbreit, 1995). Although research in this area remains limited, some informative reports are beginning to be published (e.g., Dadson & Horner, 1993; Kennedy & Itkonen, 1993).

SUMMARY

This chapter has presented an overview of the procedures and processes of functional assessment and functional analysis as they apply to students in school environments. Literature was cited that demonstrates the benefits of conducting pre-intervention assessments designed to understand the context of problem behavior so that effective interventions are more likely. A model of functional assessment and curriculum-based, proactive intervention was summarized and described with the assistance of detailed case illustrations.

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Curriculum-based Evaluation: Finding Solutions to Educational Problems

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Chapter 10

INTRODUCTION

The following discussion will try to explain a particular format of evaluation (Curriculum-based evaluation). It begins with an example illustrating a teacher's use of the format. This example will be followed by a discussion of the way the teacher and her support team thought their way through the student's difficulty. The heart of this presentation will not be measurement. It will be problem solving.

The Example

Dan is in the fourth grade. Ms. Scully is his teacher. As part of her routine monitoring she checks the progress of each of her students' performance in critical areas. She does this by reviewing each student on a rotating schedule. Checklists of fourth grade outcomes, records of class grades and tests of general outcomes are used in these reviews. In the area of reading, she administers assessments to all students once a week. These measures include peer administered tests of oral reading rate (from the social studies textbook) and passage maze completion. All students receive the same level of routine monitoring. However, for those who seem to be having particular difficulties, additional monitoring, including more detailed summaries of reading, writing, social skills and mathematics are given. Often these more detailed evaluations supply the information Ms. Scully needs to correct a problem. In these cases, the more extensive monitoring is discontinued after a short period. Therefore, at any given time, all students are being monitored and a temporarily defined group of students is getting in-depth attention.

Ms. Scully is not a special education teacher. She has built her system of continuous evaluation into her regular class schedule and tied it to a building level system of support. This support, which includes extended evaluation services when needed, is part of the general education format at her school. Consequently, when a student does not move quickly out of the problematic group, she has resources to call in for extended efforts at problem solving. In fact, Ms. Scully always has the option of going directly to these extended services if her routine monitoring reveals a problem that she thinks needs extra attention. Because the content [illegible]se evaluations is limited to the general education curriculum (the things she routinely teaches in class) and her purpose in asking for assistance is to solve an in-class problem, she does not need to refer students for support or compensatory services in order to get help (although that is always an option).

The routine monitoring processes are used by Ms. Scully to take her students' "vital signs" (sometimes this is referred to as ***dip-stick*** assessment). The results of these measures are graphed by the students. This October, while scanning the visual summaries, it was easy for Ms. Scully to see that Dan seemed to be having difficulty in reading. His performance on the reading measures had dropped off to the point that his scores were very similar to those of students receiving support services in reading. Because the problem seemed extreme, she asked that an evaluation team, composed of another teacher with advanced training in reading, a school psychologist and herself, be temporarily established. They began by reviewing the existing data. Then they collected more samples of comprehension across several grade levels. They used additional tests of oral reading rate and passage maze completion. In addition, Ms. Scully asked Dan to summarize passages. Each of these procedures confirmed the existence of a problem.

In the case of oral reading fluency, the team decided to determine the size of his performance discrepancy by using a 250-word passage at Jeff's expected level of performance (i.e., a reading passage from the social studies text to be assigned during the second month of fourth grade). When giving the test, Ms. Scully asked Dan to read quickly and carefully. She also asked him to summarize the passage when he had finished reading. By listening to him read the teacher discovered that Dan made errors which violated the meaning of the passage (i.e., the message Dan read was very different from the message in the passage). He was also slow. As Dan read the passage, he seemed to forget what he was reading and, at the end, created a summary for the passage that was composed of minor details and didn't include the main idea. Ms. Scully also noted that Dan did not self-correct the errors he made while reading.

At an evaluation team meeting, Ms. Scully reported that, according to her class norms (and established behavioral criteria), Dan was expected to read his social studies book at about a rate of 140 words per minute (wpm) with at

least 95% accuracy. However, Dan read only 80 wpm with around 60% accuracy. Also, most of his errors seemed to occur with the polysyllabic words that made up the technical terminology of the text. After thinking about it for a while and discussing Dan's performance (as a format for this discussion they used Exhibit 7 which will be described below), the team decided that both reading rate and understanding of the material could be affected by these errors. Using a basic inquiry format they developed four ***assumed causes*** for Dan's failure to read and understand the passages. The ***first*** was that the social studies text was too inconsiderate for most students to read and understand. The ***second*** was that social studies-specific vocabulary was hard for Dan to read because it was not in his speaking vocabulary. The ***third*** was that Dan did not know how to blend polysyllabic words and the ***fourth*** was that Dan might have other missing decoding skills. The meeting took about 15 minutes.

When Ms. Scully set about specifically examining the assumed causes, the ***first*** was discarded immediately because her routine monitoring of the class had included samples from the text. Other students seemed to be sufficiently skilled to handle it and, when the reading rates of the class were ranked, Dan was in the lowest 15% (being almost 50 wpm below average and making eight times more errors than the median student in class). The ***second assumed cause*** (interference due to missing vocabulary) was checked by asking Dan and three randomly selected classmates to explain the meanings of words that he had missed while reading. Dan's performance was satisfactory and as good as the other students. Therefore, the ***second assumed cause*** was also rejected.

The ***third assumed cause*** was checked by asking Dan to read isolated polysyllabic words, including some he had missed, on flash cards. To everyone's surprise Dan read the words with little or no trouble. This meant the ***third assumed cause*** was rejected and the ***fourth*** could be discarded without any additional testing. It took Ms. Scully about 30 minutes to deal with all assumed causes. This included her ranking exercise and the testing of the other students. Dan spent only about eight minutes in testing.

The team met again and listened to the results. They now knew that Dan had adequate vocabulary skills and word recognition skills. Yet he still read slowly and made mistakes that interfered with his understanding. One team member suggested that the problem might be motivational but this was rejected as insufficiently grounded in the curriculum and too far from the main task (When you get to it, this is item 7 in Exhibit 7). However, it did lead to questions about why Dan read accurately when the words were given to him on cards but inaccurately when they were in passages. Could it be that having the teacher write out the words then sit with him one-on-one to flash the cards had seemed to be so formal an exercise that Dan had simply tried his hardest and read correctly? If so, what did he need to be taught?

After about ten minutes of discussion the reading specialist suggested that Dan might be making the errors for two reasons. First, the context of whole passages might be distracting. Second, given the distractions Dan might not realize when he made an error. Based on this suggestion, and a reminder that Dan had seldom self-corrected errors, a ***fifth assumed cause*** was developed. It was hypothesized that Dan was not utilizing his existing vocabulary and decoding skills because he wasn't monitoring his reading. This seemed consistent with the confusing finding that he would read the words correctly when the teacher pointed them out for special attention. So the question was, how to test to see if a student is self-monitoring?

The team decided to collect another sample of reading errors from a passage on which Dan makes mistakes. Dan's teacher would then tap the table with a pencil every time he made an error, especially if the error violated the passage's meaning. Dan was told, "I want you to read this passage quickly and carefully. If I hear you make a mistake I will tap the table. When you hear me tap that means I want you the immediately fix the error." Ms Scully then checked to see if, with this assistance Dan would immediately corrected about 65% of his meaning violating errors. The reading specialist reported that this was the usually level at which successful readers correct such errors without the assistance of table tapping. Dan passed the test. Therefore, ***assumed cause five*** was validated.

Dan's problem was that, while he had the skills needed to read accurately and fluently, he was not monitoring his understanding of the passage well enough to realize when to use those skills. After only a few errors he had lost the meaning of the passage and this confusion snow-balled to the point that it distorted his understanding and made it hard to read quickly. Dan needed to be taught how to monitor meaning (i.e., to tap his own table). Both Ms. Scully and the reading specialist noted that this was a common error pattern among students who had learned strategies for finishing pages (usually to get them done before recess) at the expense of understanding them.

Dan's goal became "to read with the same fluency and understanding as the average fourth grade student." Objectives were written specifying first that "Given a signal as soon as an error is made Dan will immediately correct 70% of the errors." Other objectives specified modifications in the conditions of the objective so that, while the behavior was ". . .immediate correction," and the criteria remained "70% of the errors," he was asked to meet these expectations as the signals switched from "when an error is made" to "at the end of each sentence in which an error occurs," to "at the end of each paragraph in which an error occurs."

Ms. Scully then began teaching Dan to monitor his reading and took data on Dan every day to see if the table tapping was working. To monitor improvement she kept a record of his performance on the objectives, but primarily she watched for improvement in the more general class assessments (oral reading rate, Maze scores and summary statements) to judge if Dan was improving.

As one would expect in an example selected for a presentation of this kind, Dan improved almost immediately.

IMPORTANT TERMS AND CONCEPTS

The following summary of terms and related concepts is presented to clarify the remaining discussion. As presented they reflect the authors' orientation and, while sometimes debatable, these interpretations are important to the understanding of the viewpoint reflected in the chapter.

Curriculum: The curriculum is the body of outcomes taught in school. In other words, it is ***what*** is taught as opposed to ***how*** it is taught. It is not the same as published materials or instructional approaches.

- ***Prior knowledge*** is what a child knows, before the lesson begins, about a task being presented within the lesson. It is the best predictor of success in a lesson. Therefore, by using new lessons to increase a student's prior knowledge the teacher is preparing the student for success in a wider and wider range of scholarship. It is prior knowledge, or the absence of it, that defines tasks as hard or easy. One of the fundamental implications of prior knowledge is that task difficulty does ***not*** reside in the task itself. Instead it resides in the interaction of task demands, student prior knowledge and instructional support. This is evident by the fact that most things are difficult to do when first encountered but become easier with effective instruction.
- The ***current level of performance*** is the summary of a student's prior knowledge relevant to a certain task. Because new learning must begin with what a student already knows it is imperative that teachers formally summarize the student's current level in order to assure that lessons are effective.
- The ***expected level of performance*** is the curriculum level at which the student, given his grade placement, should be proficient. A student who is working as expected is not simply *attempting* to work on these skills. Instead it is anticipated that he will be so accomplished at the task that he will no longer require its active instruction. This idea of *completion* is important because it requires the instructor (and student) to have a clear image of the intended outcomes. This, in turn, requires that the teacher develop expectations about the quality of student performance (including the level of accuracy, fluency, generalization and adaptation the student should demonstrate before instruction is halted).
- A ***discrepancy*** is the difference between a student's ***current*** and ***expected*** levels of performance and/or progress. It is the existence of a curriculum discrepancy that causes students to be considered for special interventions and supportive instructional services. Consequently the goal of special interventions and supportive instructional services is to reduce (and eventually eliminate) discrepancies.
- ***Goals, objectives and target tasks*** are all terms used to describe what a student's level of knowledge should be after a course of study is finished. For special education and remedial students, goal and objective targets should fall between the ***current*** and ***expected*** levels of performance. They should specify the learning path the student will follow to decrease and/or eliminate any ***discrepancy***.
- ***The correct level of difficulty*** describes the band of lessons which are neither too ***hard*** or too ***easy*** (as determined by ***prior knowledge*** and/or magnitude of instructional support) for the student. The correct level is found by locating skills the student cannot perform adequately even though he appears to have all of the necessary prior knowledge to succeed (as you recall that was the situation with Dan's reading of polysyllabic words). In such an instance, the student is ready to be taught the missing skill because he knows everything he needs to know *except* how to do it. Therefore, the teacher is in the ideal position to use instruction to combine the student's prior knowledge with new information (supplied during the lesson). Students will learn most efficiently if they are taught at the correct level. Teaching things they already know, or things which they lack the ***prior knowledge*** to learn, wastes time.

Evaluation. Evaluation is the process by which investigators come to understand things and by which they attach relative value to things. Educational evaluation cannot take place without measuring (i.e., assessing) and then comparing the results to a standard. Evaluation includes more than measurement—it includes decision making and the use of judgment.

- ***Measurement*** is the assignment of numerals to objects, or events, according to rules (Campbell, 1940). In education, behavior is typically measured in order to draw inferences about student knowledge of, or progress through, the curriculum.
- ***Measures*** are the processes and techniques used

to sample behaviors or the products of behaviors. They may include ***reviews*** of records and products, ***interviews*** of students, teachers or parents, ***observations*** of student, peer or teacher behavior, and ***testing*** (Heartland Education Agency, 1995-97).

- ***Assessment*** is the process of giving and scoring measures.
- ***Summative evaluation*** takes place at the end of instruction. Because it takes place after instruction it provides little information for changing instruction. Summative procedures yield performance data (summaries of behavior taken on one occasion) which can only tell the evaluator what the student has learned. The term performance refers to how well a person does something.
- ***Formative evaluation*** occurs as skills develop and as teachers teach. It yields progress data (obtained by taking repeated measures of performance across time in order to recognize learning trends). The term *progress* refers to how a student's performance is changing. Formative data are called "dynamic" because they show changes in behavior (i.e., learning). They can be used to inform timely changes in instruction.

Decision Making. Within the classroom decisions typically involve deciding ***what*** or ***how*** to teach. Therefore they deal with the selection of objectives and delivery of instruction.

- ***Judgment*** is the set of personal knowledge and beliefs that forms the basis for decision making. Judgment is learned. Good judgment increases the likelihood of successful decision making. It determines the quality of a decision, however, the quality of the data to which judgment is applied also determines the character of decisions.
- ***Teacher thoughts.*** Teachers arrive at judgments according to their own ***prior knowledge*** of: the topics they are teaching (i.e., the curriculum); how humans learn; instructional and evaluation techniques; and, the characteristics of their individual students (Clark & Peterson, 1986).

DECISION MAKING VERSUS EVALUATION

Within special education, educators evaluate students for a variety of reasons. According to Howell, Fox, and Morehead (1993), the two major purposes of evaluation in special education are to make ***eligibility/entitlement*** decisions and ***teaching*** decisions.

Eligibility decisions focus on sorting or assigning students to groups (i.e., eligible for extended school year/not eligible, learning disabled/not learning disabled, behavior disordered/not behavior disordered, needing related services/not needing related services). Evaluations carried out to inform entitlement decisions should help teachers decide if students qualify for certain services. Measurements for eligibility decisions tend to be norm-referenced (local norms may be used) and their validity is linked to their power to rank, and thereby to sort, students on general constructs such as achievement and ability. A norm-referenced measure can tell how a student is doing in a particular content area as compared to the standardization population. However, it may tell you nothing about what the kid needs to learn or how he should be taught once services are started. That is because ranking requires the use of measurement formats which, in order to accentuate the differences in performance among individuals, often obscure each particular student's actual levels of performance within the curriculum. Some special educators seem to believe that the end result of all educational evaluation is eligibility determination. However, entitlement decisions are only one type of decision (Heartland Education Agency, 1995-97).

Teaching decisions, unlike eligibility decisions, directly affect teacher actions and student learning. Teaching decisions can be split into ***what-to-teach*** decisions and ***how-to-teach*** decisions. All teachers (we hope) desire to make teaching decisions intended to improve the progress and performance of their students.

Decisions regarding "what" to teach center on the recognition of the student's position along a continuum of desired outcomes. In math, for example, outcomes may range from counting while using manipulatives to balancing a checkbook while watching television. By comparing how a child performs to expected performance teachers can determine what (i.e., objectives or outcomes) a child needs to be taught next (this is what Ms. Scully did with Dan). The outcomes themselves are often fixed, through school district or state specifications (Council of Chief State School Officers, 1996), prior to the student's arrival in class. In many cases these specifications are based on an analysis of the knowledge required to do, or learn to do, a task. The better these outcomes are defined, the better we, as evaluators, can measure. Better measurement allows us to make better decisions about which skills a child has mastered. This, in turn, allows us to pick the next instructional step.

What to teach decisions are primary as one cannot judge the utility of an instructional technique without proof that the student is advancing in the curriculum. If a child isn't progressing at a rate that is adequate, or is stuck and not progressing at all, then changing ***how to teach*** becomes important.

The "how" to teach aspect of decision making is ***dynamic***. During this process we select instructional materials and manipulate teacher actions in order to bring about changes in the rate of learning. Unfortunately, the how-to-teach-decision-making-process often breaks down (Fuchs & Fuchs, 1995). At times such failures seem to be because of confusions and/or debates about which instructional techniques, or learning philosophies, are best. Such debates can become destructive to an educator's concept of individualization (as they are based on comparisons of methods to methods, and not methods to student need). In short, teachers (especially special education teachers) should avoid having favorite ways to teach (in order to diminish the chance that they will advocate for a method and not for student learning). However, this rule must always be balanced against the professionally mandated need to use techniques which are validated (Carnine, 1995a). Still, the best validation comes in the form of individual formative data which shows that this particular student is learning within the instruction being supplied.

The authors believe that specially designed interventions need not involve one-to-one teaching, full inclusion, unique instructional objectives, or even unique instruction. We view specially designed instruction as a process (of nearly any configuration) which results from individual and professional ***problem solving*** and ***decision making***. Therefore, to develop a program for a particular child, it is important that evaluators gather information on student performance and progress which can inform decision making. Information on performance must be obtained ***before*** interventions take place so that progress data can be collected ***as*** it takes place. Information obtained as a result of determining a child's progress can then be used for monitoring to see whether interventions are valid.

Criteria for measures. In addition to technical adequacy, the measurement tools teachers use during evaluation should meet four main requirements:

a. The evaluative tools should address questions identified as a focus of concern by those working to solve the problem;

b. They should provide a means to assess the child's skill(s) in relation to expectations outlined in the learning of state or federal essential academic outcomes (assuming these were well developed);

c. They should support the design of effective instruction by improving the judgment of educators trying to make ***what*** and ***how to teach*** decisions; and,

d. They should be easy to use within classrooms.

We need to have instructionally sensitive instruments that allow us to solve problems and make decisions. Examples of measurement instruments that could be utilized to inform teaching decisions include (but are not limited

- Curriculum-based measurement;
- Adequately constructed portfolios;
- Play-based assessment;
- Criterion referenced measures;
- Structured observations of the teaching setting;
- Summaries of grades and attendance and/or records of disciplinary actions;
- Teacher and student interviews; and,
- Student reports.

These may be used to establish current levels of performance and to monitor progress. A comprehensive evaluation, one that will assist educators to make good judgments, may be based on an analysis of any or all of these measures.

Just as there are multiple assessment procedures, there are different domains to assess. This means that the measures themselves can be applied to many sources of information. These can include information gathered about the quality of instruction, the quality of curriculum, and the quality of the learning environment (Heartland Education Agency, 1995-97). It is a mistake to assume that the evaluation process is all about testing kids.

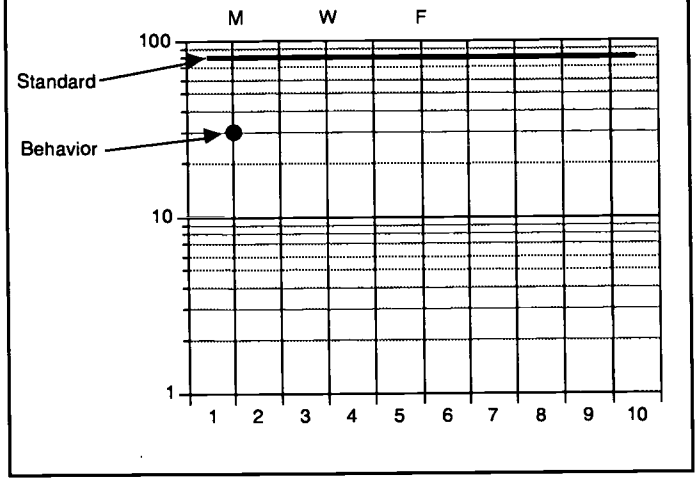
DECISION MAKING

Comparison

As defined above, a performance level can be determined by giving a single measure, then recording the students' score. For example, if a child reads ***60*** words per minute (wpm), and the goal (expected level of performance) is ***120*** wpm, then the ***60*** wpm discrepancy tells us how far the student is from where he should be (This was how Ms. Scully documented Dan's need for assistance in the earlier example). An example of a performance discrepancy is shown in Exhibit 1a (Howell & Nolet, 1998). In this case, the standard is of ***80*** is illustrated by the thick line, and the child's performance is 30.

In Exhibit 1a it is easy to see where the child is and where the child should be. By utilizing an equivalent measurement tool to take several measurements of the skill over a period of time a teacher can gather information about progress. Progress cannot be determined by using one performance point (as in exhibit 1a). Exhibit 1b shows student progress by illustrating a change across several performance points. By comparing the child's actual progress trend (change, or lack of it, in performance) to the expected rate, it is clear to see that there is a ***progress discrepancy***. This is an indication that the instruction is inadequate and needs to be changed (see the discussion on ***Deciding How to Teach*** which follows shortly).

Exhibit 1a. A Performance Discrepancy



Decisions And Judgment

Deciding is an act (i.e., something a person does). Judgment on the other hand is a quality (i.e., how well something is done). Unfortunately, decision making in education does not always reflect good judgment. Edwards and Neumann (1986) offer three explanations for this:

1. Judgment makes use of data, which can be observed (e.g., answers to questions), to draw conclusions about things that can't be seen (e.g., knowledge of reading comprehension). Some things can't be observed because they are covert, absent or in the future.
2. Judgments only have a ***probability*** of being correct.
3. The correctness of judgment is defined by how well it works within a certain context, or setting (meaning that a decision can seem to be a good one in one setting but a bad one in another).

The word ***probability*** in number two is an interesting term to consider. In education, few things that teachers do have guaranteed outcomes. Sometimes, decisions based on the best possible measurements and judgments don't work. This becomes increasingly true as the impact of any given decision is extended across time. Therefore, it is good judgment not to trust our initial judgments.

Although we can increase the likelihood that good results will occur when we make educational decisions, the lack of guarantees is a worthy argument for using formal processes to make important judgments. It is also a good argument for utilizing formative evaluations to continually monitor the effects of our decisions. This recognition of the need to monitor is one characteristic of "expert" decision makers (Laufer, 1997). Experts are usually seen by others as masters who make good decisions or make decisions well (Arkes & Hammond, 1986). A person can learn to be an expert, resulting in an increased likelihood that the decisions she makes will be the correct ones. One way to do this is to actively avoid certain threats to good judgment.

Some possible threats to good judgment are outlined in Exhibit 2. They have been drawn from several researchers (Adams, 1979; Dunkin, 1996; Margolis, 1987; Nisbett & Ross, 1980; Tversky & Kahneman, 1988). For example, one threat to good judgment is ***stereotyping***. Stereotyping is illustrated when a teacher says "He can't do that because he is SBD (or any other label)." In this case, the decision maker has not based her judgment on what the student may know or whether he has the prior knowledge necessary to do the task. She has simply grouped the child into a category called SBD and made her decision based on what she believes to be consistent with the label. This could mean that the teacher will not teach him a particular skill even though he has the prior knowledge needed to learn it.

CURRICULUM-BASED DECISION MAKING

As was mentioned above, the "curriculum" does not refer to teaching materials or techniques. It refers to the skills (e.g., addition fact fluency, decoding CVC words with accuracy, balancing a checkbook) that need to be taught. Although many teachers seem to believe that the "curriculum" refers to certain instructional programs (SRA, Houghton-Mifflin, Reading Recovery, etc.) this is incorrect. The curriculum is the set of ***learning outcomes***, often referred to as the ***goals*** and ***objectives***, that these programs are intended to teach (Howell & Evans, 1995; Johnson, 1967; Messick,1994; Nolet & McLaughlin, 1997). The curriculum, as evident in various projects such as "Goals 2000" (Council of Chief State School Officers, 1996) should be established well before students come through the classroom door. These outcomes are generally based on the developers' expectations as to what students need to know in order to become independent, productive, and positive in-

Exhibit 1b. A Progress Discrepancy

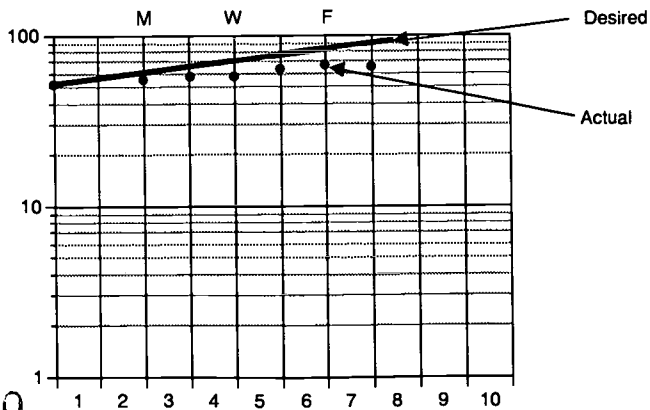


Exhibit 1b. A progress discrepancy.

Exhibit 2: Threats to Judgment

Threat	Explanation/Example
Data Characterization (Selective attention)	Seeing what you expect or want to see. Two people watching the same behavior don't agree about what they saw.
Lack of the knowledge needed to make a judgment	Working on things you don't know about (e.g., trying to use curriculum-based measurement when you have not learned how to interpret it).
Stereotyping (Over generalization)	Working with someone's label and not their characteristics (e.g., ignoring Ralph and only attending to the fact that he is labeled LD).
Failure to define the problem	Not knowing what it is you are trying to do (e.g., deciding to have students take a test without having a clear idea about what question the test results should answer).
Defining the problem too trivially or narrowly	Concentrating on a trivial aspect of a larger problem (e.g., thinking about the haircut of a student who has no friends).
Lack of perspective	Only seeing things one way (e.g., not appreciating the problem from the parents' point of view).
Fear	Of failure, risk, notoriety, success, responsibility or nearly anything else.
Premature resolution	Stopping work too early—failing to be comprehensive (e.g., picking the first solution that comes to mind).
Insensitivity to probabilities	Not considering that some problems may have unremarkable causes (e.g., deciding to adopt specialized reading materials when you don't know how well the general-education class materials have been employed).
Sample size	Drawing conclusions from too few experiences or examples (e.g., concluding a student can add because he works four problems correctly).
Misconceptions of chance	Thinking that unrelated events can affect each other (e.g., believing that divorce always leads to emotional and behavioral problems).
Unwarranted confidence	Deciding to do something on the basis of evidence, or advocacy, that doesn't directly relate to the problem at hand (e.g., deciding to recommend remedial math for a student because she scored low on a IQ test).
Selective or incomplete search	Only considering one category of options (e.g., the use of teaching methods advocated by your friends).
Mistaking a correlational relationship for cause and effect	Just because two things happen at the same time doesn't mean one causes the other (e.g., thinking that a student threw up in class for attention because everyone looked at her when she did).
Lack of a supportive environment	Not having a chance to observe others use, or having encouraged, good judgment (e.g., working in a school where everyone routinely makes all of these errors).

Based on: Howell, K.W. & Nolet, V. (In Press) Curriculum-based Evaluation: Teaching and Decision Making

fluences in the community. Hopefully, such expectations have a sound empirical basis and do not simply reflect currently popular educational fads (Messick, 1994).

The curriculum should establish a path that will lead students (remedial as well as general education) from their current levels of performance to higher levels of social competence. In order to increase the learning of students, teachers may select different instructional materials, break skills into bits, combine them into larger tasks, and reorganize the sequence of their presentation. However, the essence of the curriculum shouldn't change. In other words, no matter how it's organized, the end product (a socially successful adult) remains the consistent goal for all.

In a curriculum-based evaluation (CBE) model teach-

ers use a process called task analysis to help them decide which goals or objectives to choose. Task analysis requires that a person define all of the essential components of a task (Howell, Fox & Morehead, 1993). The idea is that if a child is missing knowledge of one or more of these components, this may explain why the student cannot perform as expected. This focus on missing prior knowledge stands in sharp distinction to the focus many educators bring to their attempts to solve learning problems. Those educators have been trained in a student-based model of thinking that assumes errors are the result of student variables which are essentially unalterable through short term instructional interventions. Examples of such unalterable variables (Bloom, 1980) might include family history, IQ, and disability status.

In the traditional psycho-dynamic, or student-based, approach to evaluation the tendency is to conceptualize student failure in terms of these unalterable cognitive, perceptual and/or emotional deficits. This kind of thinking leads logically to the selection of measures which attempt to summarize cognitive, perceptual and/or emotional deficits. In distinction, evaluators using the CBE approach try to develop a clear knowledge of the curriculum. From this foundation teams can use task analysis to compare a student's skills to expected performance within the curriculum. Then they can decide which tasks are missing and, consequently, which should become the child's instructional objectives.

Knowledge of the curriculum (i.e., the essential learning outcomes) is the cornerstone for useful test construction, evaluations, decision making, and teaching (Cohen, 1987; Davidson & Howell, 1997; Deno, 1992; Fuchs & Fuchs, 1992; Nitko, 1989). That is because instructionally useful measures help evaluators determine whether a child has the prior knowledge necessary to learn an objective. It would be impossible, for example, to create an accurate measure to determine whether a student can read if no one knows which behaviors represent reading skill. Therefore, the curriculum and assessment must be aligned (Dixon & Carnine, 1992). In fact, when alignment is lost, school may become nothing more than a bundle of unconsolidated activities.

The steps necessary for curriculum-based planning are outlined in Exhibit 3 (Howell & Nolet,1998). This Exhibit takes us from figuring out what the problem is all the way through the selection of an instructional program. The Exhibit emphasizes the central roles of decision-making and curriculum, as well as the necessity for alignment (Davidson & Howell, 1997). During CBE, inquiry is aligned with objectives by using measures which are sufficiently parallel with the curriculum to allow the determination of current levels of performance. By assuring alignment we also guarantee that what we think about, measure each, and put into the student's program all compliment each other. This is best seen in Action 8 in Exhibit 3. As this Action indicates, the teacher cannot determine whether instruction is effective if the instruments used to monitor progress are not direct measures of the curriculum.

A View of the Curriculum

Exhibit 4 (Howell & Nolet, 1998), provides an expanded view of school curriculum. This exhibit is presented to help evaluation teams focus on the curriculum while, at the same time, expanding the curriculum to include learning-related topics which may not commonly be thought of as instructional outcomes.

Exhibit 4 contains more than the traditional academic domains by including areas like social skills, class behavior, study skills and basic learning. It starts with a child who is missing prior knowledge, then the Exhibit illustrates knowledge as subdivided into categories. For example, literacy includes the skills that are conventionally considered when thinking about school outcomes.

Literacy is illustrated when a person comprehends and responds appropriately in both academic and social contexts. Literacy is generally thought of as the main focus of instruction. Therefore, it is the most familiar domain in Exhibit 4. The realm of literacy includes the skills required to exchange messages efficiently in a particular culture. In addition to communication skills, literacy includes the topi-

Exhibit 3. Steps for Curriculum-based Planning

ACTIONS TO TAKE:		THINGS TO THINK ABOUT:
1 DEFINE THE PROBLEM	PAY ATTENTION TO THE REFERRAL. DO NOT BEGIN TO TEST PRIOR TO ACTION 3. LOOK AT THE LEARNING ENVIRONMENT.	THE TASK AND THE SETTING
2 CLARIFY WHAT THE STUDENT NEEDS TO LEARN	DEVELOP SPECIFICATIONS FOR SUCCESSFUL PERFORMANCE, OR LEARNING OF THE TASK.	WHAT THE STUDENT SHOULD DO WHEN THE PROGRAM IS OVER
3 CLARIFY THE CURRENT LEVEL OF PERFORMANCE	DESCRIBE THE DIFFERENCE BETWEEN WHAT SHE IS DOING AND WHAT SHE IS EXPECTED TO BE DOING.	WHAT THE STUDENT CAN DO RIGHT NOW
4 DEVELOP ASSUMED CAUSES FOR THE PROBLEM	THINK OF SKILL/KNOWLEDGE DEFICITS, OR INSTRUCTION FACTORS, THAT MAY BE CAUSING THE PROBLEMS.	MISSING PRIOR KNOWLEDGE
5 EVALUATE TO SEE IF THE ASSUMPTIONS ARE CORRECT	USE TESTS, OBSERVATIONS AND/OR INTERVIEWS TO CONFIRM HYPOTHESIS FROM STEP 4.	ALIGNMENT WITH ASSUMED CAUSES
6 SELECT OBJECTIVES	DECIDE WHAT THE OUTCOME OF THE PROGRAM SHOULD BE (I.E. SELECT GOALS AND OBJECTIVES).	WHAT WILL CHANGE #3
7 SELECT INITIAL INSTRUCTIONAL PROCEDURES	SELECT INSTRUCTIONAL PROCEDURES WHICH TARGET THE OUTCOMES.	ALIGNMENT WITH #6
8 DEVELOP A MONITORING PLAN	USE MEASURES THAT SAMPLE THE OUTCOMES AND THAT ARE SENSITIVE TO LEARNING.	FREQUENT AND DIRECT MEASURES
9 DETERMINE WHO WILL BE RESPONSIBLE	DEVISE A WAY TO JUDGE IF THE PROGRAM IS WORKING AND TO MAKE CHANGES IF IT IS NOT.	SCHEDULES OF REVIEW
10 PLACE THE STUDENT AND PROVIDE ASSISTANCE	PUT THE STUDENT WHERE WHAT S/HE NEEDS TO LEARN IS BEING TAUGHT. PROVIDE ASSISTANCE UNTIL LEARNING IS COMPLETE.	PLACEMENT

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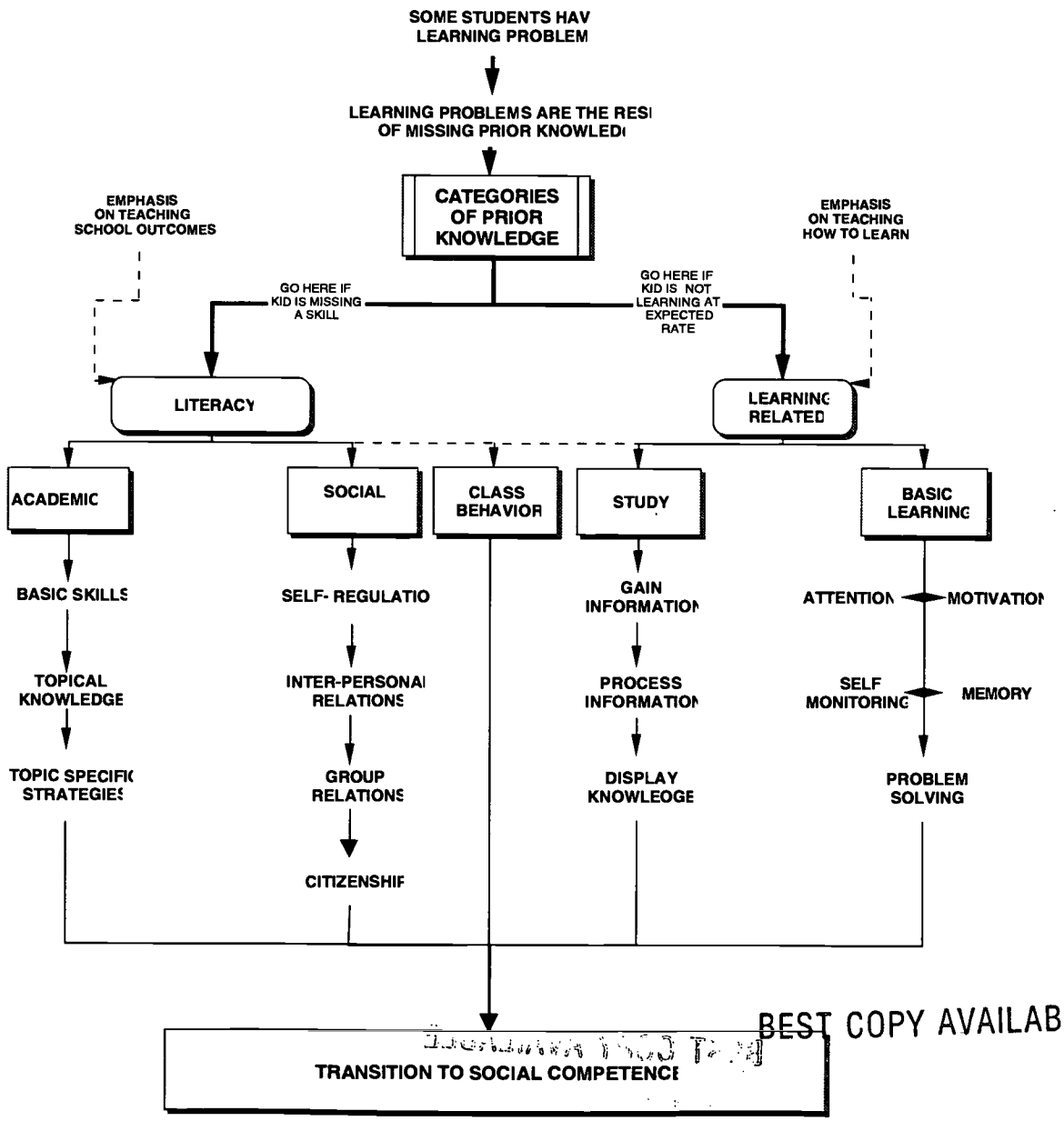
cal information students need in order to convey meaningful messages within specific areas of content (e.g., music, history, biology, literature).

Learning-related knowledge (sometimes called ***task-related*** knowledge), on the other hand, refers to study and learning skills. These are skills that kids need in order to obtain and display knowledge in school, but they are often not directly taught. When a student doesn't have these skills he may eventually develop progress deficits and extreme performance difficulties. Such students are often the ones that require extensive supplementary educational services (because they need to be taught something that is not typically taught in general education).

Unless learning-related deficits are addressed, a teacher may correct performance deficits in an area of literacy only to have the child fall behind again due to the missing learning skills. It is possible to have a performance deficit in literacy without there being missing learning-related skills (for example, if the student learns well but changes school districts and misses the lessons covering a particular skill). However, a progress deficit always includes a performance deficit because one cannot measure progress without also measuring the content area in which the learning was meant to take place.

Class behavior is located in the center of Exhibit 4 and is linked to both literacy and learning-related skills. That is because, in some cases, class behaviors are tied to specific academic expectations and in others they are not. For ex-

Exhibit 4. An expanded view of curriculum.



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ample, as a basic skill in a chemistry class the teacher may expect students to ***treat equipment carefully***. Therefore, a student who breaks equipment may be considered to be making "chemistry errors" in that class. In another class the same behavior may be treated as learning-related knowledge because it is only judged in terms of its contribution to, or interference with, the general learning environment of the class.

Types of knowledge

When educators try to coordinate the curriculum, the tasks that students will be doing are often categorized by content (i.e., "This is a language task"). However, the curriculum is multi-dimensional and complex. As a result content may not describe the only salient elements of a task. The curriculum can also be structured by grouping varying properties that share certain themes. For example, as seen in Exhibit 5, outcomes can be grouped into knowledge categories such as ***facts***, ***concepts***, and ***procedures***.

Factual knowledge is sometimes called rote or declarative knowledge. Facts are correct statements. Examples of

Exhibit 5. Shells for "Types" of knowledge

FACTUAL KNOWLEDGE

IDENTIFY ANSWER (underline, circle, point to, hi-lite)	PRODUCE ANSWER (write, say, construct an example)		
ACCURACY	ACCURACY	MASTERY/ FLUENCY	AUTOMATIC
2 + 2 = *3* *4* *5* *6*	*2+2= (untimed)*	*2+2= (at rate)*	*2+2= (in check book)*

CONCEPTUAL KNOWLEDGE

SORT EXAMPLES FROM NON-EXAMPLES (place, mark, label)		SPECIFY ATTRIBUTES (list, mark, name)		DEFINE CONCEPT (state, write, illustrate)	CONTRAST/MODIFY (list similarities, state differences, change attributes)	EXPLAIN/IMPLY (state implications, predict or estimate answer, select strategy)
FAR EXAMPLES	NEAR EXAMPLES	NON-CRITICAL	CRITICAL			
squares and circles	*squares and rectangles*	*color, size, location*	*4 sides, straight sides,*	*" A square has four straight sides and 90 degree corners."*	*"Squares have equal sides, rectangles don't."*	*"To draw a square I'll need something to measure the sides."*

PROCEDURAL/STRATEGIC KNOWLEDGE

IDENTIFY WHEN TO USE PROCESS (sort examples, say label, circle)	SPECIFY PROCESS (say, write, outline, diagram)		APPLY PROCESS (say, write, do [construct product])
	LIST STEPS	LIST RULES	
"This would be a good to time to use self-management"	*Set goal; Find alternatives; Anticipate consequences; Make a plan.*	*Problem must be mine; It must be worth the effort; It must be what others want.*	*Use self-management to negotiate getting in the ball game at recess.*

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Exhibit 6: A contrast of ways to deliver information for different types of knowledge

DELIVER INFORMATION

FACTS	CONCEPTS	PROCEDURES
• Review relevant prior knowledge • Show items and answers • Encourage use of memory strategies such as rehearsal and categorization • Keep delivery of information short • Separate the presentation of commonly confused items • Encourage rapid responses	• Review relevant prior knowledge. • Name the concept and use the same name during all initial lessons (use synonyms later). • Show multiple examples of the concept and point out the critical and non-critical attributes in each example. • Use clear examples in early lessons and ambiguous examples in later lessons. • Take your time. • Emphasize reflection and accurate responding. • Work with the student to prepare a diagram (map) of the concept. • Encourage discussions and questions about the concept. • Demonstrate how an example can be changed to a non-example (and vice versa).	• Review relevant prior knowledge. • Name the strategy. • Demonstrate use of the strategy. A. Work while talking aloud. B. Show recognition of problem. C. Show recognition of alternative strategies and selection of target strategy. D. Show self monitoring and decision making. E. Show limits of the strategy and rules for its use. F. Leave a model if possible. • Encourage the student to work through difficult items. • Encourage the student to monitor his work and to decide how things are going *before* an item is finished. • Emphasize the process of work—not the completion of tasks. • Point out the necessary prerequisite skills/knowledge needed to use a strategy. • Give elaborate explanations and demonstrations. • Don't supply answers, only supply ways to get answers.

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factual knowledge are (a) Mammals have hair, (b) The square root of 100 equals ten, and (c) Olympia is the capital of the state of Washington. A student who only has factual knowledge may know the answer to a question without knowing how to find the answer or tell you what the answer means.

A child who demonstrates ***conceptual knowledge*** knows the meaning of answers. For example, "4+4=8 is the same as taking 4 gummy bears in one hand and combining them with 4 more in another hand. This gives a person more candy." Conceptual knowledge resides in the recognition, within examples, of the critical attributes of the concept (Bulgren, Schumaker & Deshler, 1988). This allows the student to understand how objects, events, and ideas contrast or relate.

Procedural knowledge is composed of the rules, or strategies, one uses to arrive at an answer or solution. When explaining to a student how to do something, a teacher is providing the student with procedural knowledge. For example, when teaching how to listen to a lecture the teacher may present a specific step-by-step procedure for recognizing relevant from trivial information. If a student fails to apply the steps correctly, his class notes may be inadequate.

A student may have mastered every subtask of a complex problem, but still reach an erroneous response by incorrectly applying the procedure for combining the subtasks (that was part of Dan's problem). Strategic knowledge is an important focus in special education since it is believed that many remedial students have particular difficulty in this domain (Reid & Stone, 1991; Tobias, 1994). The recommendation that procedures be taught (Derry & Murphy, 1986) implies that the curriculum needs to embed procedures into the existing body of learning outcomes. This means that, instead of having objectives that simply state what a student will do, it may also be important to have objectives which specify how the student will reach the solution. For example, a typical objective for a capitalization problem may say, "student will capitalize proper nouns with 100% accuracy." The addition of a procedural component could stipulate that the "student will identify proper and improper nouns in order to select and capitalize the proper nouns with 100% accuracy." The difference in the second objective is that a rule component was added to what the child must do. If the child doesn't follow the rule, but still capitalizes correctly (for example, by asking for help) then she hasn't met the objective.

Because students having trouble in school make frequent errors, the process of ***error analysis*** is often recommended as a useful evaluation technique. The idea that there

are different types of knowledge (independent of content) raises the likelihood that an error analysis may reveal certain student specific patterns of mistakes (i.e., tending to make factual, conceptual and/or procedural mistakes). Such a finding can have instructional implications if different ways of teaching are useful with different kinds of outcomes. For example, the techniques one might use to deliver different types of information are presented in Exhibit 6. (It should be noted that it may be possible, or even ideal, to have outcomes for all three types of knowledge included in every lesson. The emphasis on categorization reflected in evaluation is necessary to obtain focus. It should *never* be taken as an argument for teaching information in isolation).

EXHIBIT 7: Rules for Educational Problem Solving

Rule	Example/explanation
1. Work with others to define the problem	If possible, collaborate. Decide if there even is a problem. Then decide if it is significant and if it seems to be related to the curriculum, instruction, environment or student. Finally, think of a way to make it observable so you can measure it.
2. Decide if the problem is a priority	Consider the problem in relation to other needs.
3. Focus on the desired outcome	Shift the discussion from what the student is doing wrong to what you want the student to do right.
4. Decide what the student will be doing once the problem is fixed.	Operationally define success. Have a clear vision of success and get agreement so that everyone (including the kid) understands what they are working to achieve (this is related to the first rule).
5. Focus on alterable variables and the curriculum	Think about what things you can control through instruction and what the student needs to be taught.
6. Assume that the problem is the result of missing prior knowledge	It is not sufficient to avoid considering unalterable variables. You must use your knowledge of the curriculum to recognize essential subskills/prerequisites which the student must learn in order to succeed at the targeted task.
7. Stay close to the main task	Think of assumed causes that are close to the main task. Do not automatically move to levels of the curriculum which are much lower than the target. If you move too low your thinking will be driving the student backwards. As a rule discard any assumed cause which is so basic that it would explain many problems (including some the student does not have).
8. Start with the easy parts	See if there are portions of the problem which can already be solved, or which will be easier to solve than others. Get those out of the way first.
9. Look for the critical parts	A student may be missing many skills but they may not all be important. Try to recognize the essential requirements (i.e., prerequisites) of the learning goal. Only investigate the student's skill on these tasks.
10. Look for simple solutions.	Do not assume that big difficulties always indicate complex problems. There may be a missing step or piece of information which, once provided, will clear up the whole thing.
11. Act quickly	The sooner you start working on the problem the sooner you will get feedback on the quality of your solution. You will also get more information on the problem. Besides, the kid is already behind.
12. Work in teams	If the solution involves several individuals include a mechanism for them to meet and discuss progress.
13. Monitor	Monitoring reduces the need for "front loaded" certainty. If you have good monitoring data, and are flexible, you can arrive at good solutions by improving the ones with which you started.

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The CBE Process

This process begins with a comparison of the way things are (student's current level) to the way things should be (the expected outcomes). But the heart of CBE is active decision making on the part of the evaluation team (Shinn & Hubbard, 1992). Therefore, good evaluation requires good decision making based on good assessment information. In CBE all of these must be grounded in the curriculum.

The process of CBE can be broken into four steps. This format of finding facts, developing assumed causes, measuring, and decision making is nothing more than a modification of the scientific method of inquiry (Huberty, 1996). It can be followed no matter who you are teaching, or what is being taught.

Step 1. The first step in this process, ***fact finding***, requires evaluators to collect information about the student, usually by administering some form of broad band survey procedure. The goals of the fact finding step are to:

- establish a list of things the child either can or cannot do (the current level of performance); and
- summarize any discrepancy that may exist between the student's current and expected levels of performance.

The survey measure, therefore, is a way to check the student's "vital signs" to see if additional evaluations are needed (Heartland Education Agency, 1995-97). Survey assessment techniques may include general outcome measures (Espin & Foegen, 1996), reviews of class assignments, portfolios, or even standardized achievement measures. Often interviews with parents and teachers can provide the best survey of a student's current status. These interviews can be structured by having participants judge and mark the student's status on checksheets containing lists of required skills. If the participants have experience with the student, their ideas about his status on various skills may efficiently yield useful information. There may also be additional value in the use of collaborative problem solving

Once the survey is completed, the evaluation team examines the results to see if there is a problem. If there is a problem, attempts are made to define the expected behavior (what will occur once the problem is fixed) in the clearest possible terms.

Step 2. In the next step, ***developing assumed causes***, the evaluation team creates a list of likely explanations for the student's performance. At this point these explanations are only ***assumed causes*** that need to be either validated or rejected. How one arrives at assumed causes is very important because, as has been explained, different evaluators may think of different explanations for a problem. These different explanations can, in turn, lead to the selection of different follow-up measures and, ultimately, different conclusions. For example, imagine that one evaluator assumes a reading comprehension problem is due to missing vocabulary skills, while another thinks the problem is one of missing skills in syntax. These two evaluators will pick very different measures to conduct their follow-up evaluations. They may, as a result, also arrive at different instructional recommendations.

The notion of CBE is related more directly to the development of hypotheses and conclusions than it is to the application of a particular set of measures. In CBE individuals, or teams, attempt to ensure functional outcomes by grounding their assumed causes and teaching decisions in the curriculum (as opposed to ideas about various disability categories, learning styles, or cognitive peculiarities). In this way the evaluators' thought process sees to it that the final product will be directly aligned with the focus of instruction (i.e., the curriculum). Rules for assuring alignment can be found in Exhibit 7. These rules were developed to assure that, during the process of speculating about the causes of a student's problem, the evaluation team remains focused on locating instructional goals which are within the curriculum, personalized and obtainable through instruction.

Exhibit 7 was created to help maintain the CBE orientation during the often collaborative process of developing hypotheses. For example, in exhibit 7, Numbers 5 and 6 refer to the previous discussion of alterable and unalterable variables. Often the influence of entitlement issues, or the conflicting philosophies of evaluation team members, lead discussions into areas of causation which cannot be readily altered through instruction. This is faulty because teachers cannot easily change things like disability status (e.g., ADD), home life, or birth order (even though there are measures which can be given to reveal information about such variables). If the evaluation and decision making activities are to have instructional utility members of evaluation teams must think about things that can be altered through instruction. In this case that means trying to think of alterable explanations for the student's failure to engage in the target behavior.

Item 7 in Exhibit 7 cautions the evaluator, or team of problem solvers, to stay close to the main (target) task. The reason for this rule is simple:

- the student is behind in the curriculum;
- the primary assumed cause for this problem is always that the student is missing critical prior knowledge;
- this prior knowledge must be at a lower level in the curriculum; but,
- the evaluation is being carried out to find ways to catch the student up; therefore,
- there is a need to think about the skills which are taught ***immediately before*** the target so that the thought processes of the team do not drive the student backwards.

Exhibit 8. Format of Inquiry

QUESTIONS	ACTIONS
Question 1. *Is the student failing on an important prerequisite skill?* If "Yes", go on to Question 2. If "No", go to **Action B**	**Action A:** employ specific level assessment for each assumed cause. **Action B**: Check the quality of the Survey-level procedure, then repeat it. If the Survey-level failure is repeated develop new assumed causes. If the failure is not repeated, suspend the evaluation.
Question 2. *Does the student have the prior knowledge (in either the literacy or learning-related domains) required to learn the skill?* If "Unsure" go to **Action C** If "Yes", go to **Action D** If "No," go to **Action E**	**Action C:** Use additional measures to check the student's knowledge of immediate prerequisites. Then ask **Question 2** again. **Action D**: List the skill as an objective and teach it. If "No", go to **Action E.** **Action E**: Treat the results of the specific-level assessment the same way you treated the results of the initial survey-level assessment. Analyze them, then judge the importance of prerequisites and assess them. Continue until you can answer "Yes" for both questions 1 and 2. This will eventually take you to **Action D**.

The problem is that, while new learning depends on prior knowledge (which will be linked to information provided during instruction to assemble new knowledge), it is a mistake to teach a student what he already knows. To avoid this mistake the initial assumed causes (skills targeted for specific level assessment) should be close to the student's expected level of performance. If these tasks turn out to be too difficult (meaning that the most important missing prerequisites are even lower in the curriculum sequence) then new assumed causes will need to be developed. One may eventually end up evaluating in areas of the curriculum which are far removed from the target. However, as illustrated in Dan's case, this would only happen through the repeated process of measuring student performance on increasingly distant requirements.

Notice that in the paragraph above a reference was made to ***the most important missing prerequisites***. Rule number 9 relates to this idea. Students who are having problems in school are often deficient at many skills. Some of them are important and others are not. It would be a mistake to cast too wide of a net and recognize a large number of objectives with varying importance. Here are some guidelines for judging the importance of a particular objective. A subskill is most essential if:

- it is pivotal to the learning of many other tasks (e.g., reading);
- it is part of an interrelated cluster of skills (i.e., meaning that without this one skill the others in the cluster are of little use. For example, all punctuation signs must be employed for a paper to be mechanically correct. Being ***really*** good with commas will not compensate for poor use of periods);
- it is part of a task specific (or ambiguous) procedure, (e.g., the long division algorithm or "speaking with ***appropriate*** language") which is unlikely to be figured out by the student working alone and using general problem solving skills; and/or,
- it must be employed with a high level of proficiency (meaning that errors are not acceptable or the skill must be used fluently. Reading comprehension is an example.).

Here are some other considerations which may cause one to decide that a missing skill is worthy of special attention:

- the student's personal interest in learning the skill ***or*** the student's particular dislike for a skill that needs to be learned;
- if the skill has already been taught without success;
- if the student is experiencing failure on initial attempts to learn the task;

- information that this skill is needed in order to learn under the instructional conditions imposed by a particular teacher or learning environment (e.g., critical listening and note taking skills may become important if the student will soon be attending a class where the primary mode of instruction is lecture);
- when the time typically allocated for teaching the skill has expired and no future instruction can be anticipated within the general education framework; or,
- when the skill involves engaging in, or avoiding, activities which may pose a threat to the welfare of the student or others (e.g., sexual activity).

Step 3. In Step 2 the team selected skills which seemed to be missing and placed them in priority. These skills then became the assumed causes for failure at the target task. Next it is necessary to test these hypotheses to see if they are correct. This step is often referred to as ***specific level*** measurement because the instrumentation utilized (remember it may be an observation or interview) needs to be narrowly focused. The ultimate purpose of this step is to find tasks which are at the correct level of difficulty so that goals and objectives can be developed.

In order to conduct specific level assessment evaluators must develop or find instruments that will resolve two questions: ***Is the student failing on an important prerequisite skill?***; and, ***Does the student have the prior knowledge required to learn that skill?*** To find the answers to these questions, the format of inquiry in Exhibit 8 is useful. This is the process Ms. Scully and her team followed with Dan. It starts by employing specific level assessment (labeled ***Action A***).

For example, notice that (as prescribed in Action B) when Dan passed his first specific level measures Ms. Scully went back and checked the quality of the Social Studies text to see if failing to read it was even a real problem.

Step 4. In the final step the evaluation team reviews the specific level results and makes decisions. They must decide whether the assumed causes were correct or incorrect. If it is concluded that the assumed causes were correct, then those become objectives in the student's program (see number 6 in Exhibit 3). If it is concluded that the assumed causes were incorrect, or the evaluation was inconclusive, then the team must go back and develop new assumed causes.

As you can see, this four step process goes well beyond mere measurement and the reporting of scores. A great deal of thought and judgment should go into evaluating students. This means that the promise of the process resides in the utility of the evaluator's thoughts. The F.A.C.T. process is only a vehicle. Without sound judgments fo- l on alterable variables, chances are not good that an appropriate program will be established. This is true even if the F.A.C.T. format is followed. If, however, the evaluator has determined the facts, developed appropriate assumed causes based on suppositions about missing prior knowledge, tested these hypotheses, and concluded that the assumed causes are valid, then she will have found instructionally meaningful objectives. Each of these activities can be improved by avoiding the threats presented in Exhibit 2, following the process in Exhibit 3 and using the rules presented in Exhibit 7. Once this has been done the evaluation team will be ready to make decisions about how to teach.

DECIDING HOW TO TEACH

Most of the discussion so far has focused on determining what needs to be taught. Once that has been determined (utilizing a summative CBE approach), it is now time to focus on deciding how to teach. During this activity, it is important that evaluators remain focused on "the principle of alignment." If the original goals and objectives have been determined by a thoughtful CBE process, it follows that decisions about how to teach these outcomes should be made in a similar manner. Unfortunately, this is not always the case and, after having spent considerable effort deciding what the student needs to be taught, considerations of curriculum are sometimes abandoned in favor of preferred instructional methods or questionable treatment selection processes.

Many educators, for example, select teaching approaches through the process of interpreting summative measures of student abilities or aptitudes. Historically, research in this area has been called *Aptitude Treatment Interaction* (Howell, Fox, & Morehead, 1993). Researchers in this area have tried to define, or categorize, different types of learners by measuring their cognitive or perceptual aptitudes. They then match the learners to particular instructional programs in the belief that these programs will be superior for the students. Today, this is more commonly known as ***learning styles instruction*** (LSI).

However popular, the validity of LSI has been questioned (Howell, 1995; Lloyd, 1984; Snider, 1992). It seems that one of the ultimate problems with LSI is its reliance on summative measures. For LSI to work the aptitudes that are tested must be related to instruction ***and*** they must remain stable long enough for meaningful instruction to occur. This relationship, and its stability, are both needed to accurately predict which program will work best for a student in the future. Unfortunately, no summative measures of student aptitude have yet to demonstrate that kind of predictive utility.

When it comes to specific learning outcomes and individual students, formative evaluations, which give an ac-

curate image of how learning is progressing, are more useful than predictive measures. Because learning is indicated by changes in behavior over time, formative evaluation tells teachers whether instruction is working. It therefore directly influences how we teach. Formative (progress) information tells the magnitude as well as the direction of change, and is dynamic as opposed to static. With formative measures, which are often repeated administrations of the original global outcome techniques used at the survey level of a CBE, a teacher can see when instruction needs to change. Under this approach instead of looking for a student style or aptitude to match with a treatment, the educator tries different treatments to find the one that best fits the learning goals and the student.

Even a formative approach to the selection of instructional techniques does require an initial "guess" regarding treatment selection. It can be argued, within a CBE framework, that some teaching procedures have a greater probability of success because of their alignment with the nature of the objectives being taught and the student's current level of skills (both in literacy and the learning-related domains). For example, if the student seems to be missing conceptual knowledge it seems logical to use an accepted approach to concept instruction.

One of the most beneficial aspects of formative CBE is that the focus is always centered on learning outcomes. This motivates students by teaching them to define success at learning in terms of progress (Schunk, 1996). Data-based program modification (DBPM) is one example of formative assessment (Deno and Mirkin, 1977). When utilizing a formative assessment tool such as DBPM, increased frequency of assessment allows data-based decisions to occur more often. If assessment occurs daily, then decisions about how to teach can be made on a daily basis, whereas monthly measurement means informed decisions can only occur once a month. Other examples of formative assessment procedures include Mastery Monitoring (Deno & Mirkin, 1977), Precision Teaching (Howell, Fox & Morehead, 1993), and single subject designs utilizing Applied Behavior Analysis (Kaplan, 1995; Wolery, Bailey & Sugai, 1989). All of these techniques employ some method of comparing a student's progress over time to a progress standard. But they also require CBE measures which directly sample what is being taught (Allinder, 1996; Deno & Mirkin, 1977; Tilly & Flugum, 1995).

CBE IN PERSPECTIVE

In his book *A Civil Action,* Harr (1996) describes how the public's support of the United States Judicial System hinges upon the belief that decisions within that system are based on the rule of law. In a passage that evokes the modedicament of education he states that "The judgments of the courts are meant to reinforce social rules and values and, at the same time, to deter behavior contrary to those rules and values. To achieve this end, the public has to believe that jury verdicts are statements about the truth of actual events, not mere probabilities" (pp. 236).

Education is currently undergoing some changes. Many of these have surfaced as programs of "high-stakes" evaluation (Howe, 1994; Labaree, 1997). Almost every state is involved in some kind of statewide assessment initiative and many have undertaken efforts at curriculum clarification (Nolet & McLaughlin, 1997). Such initiatives are often tied to the "Goals 2000" proposal which emerged at the federal level (Good, 1996). However, something other than educational insight may have prompted these calls for educational reform. It may be that the public, and many educators themselves, have come to doubt that decisions within education are based on solid information and sound reasoning. In this context, Harr's quote accurately relates to the public's need to believe that the results of educational assessment are trustworthy. Without this belief, there can be no trust in education.

One clear factor behind evaluation reform has to be the widespread disappointment educators and parents express relative to the use of traditional measures of student achievement. Such measures have long been criticized for the bias and instructional irrelevance that limits their utility when judging teacher, school, district, state and national accountability (Editor, 1997; Garcia & Pearson, 1994). Additionally, many educators and community members have come to realize that, without adequate outcome measures, there is no logical way to resolve the nonstop debates about preferred processes of instruction (Carnine, 1995b; Dixon & Carnine,1992; Eisner, 1997; Linn & Baker, 1996).

Still, it should not be assumed that state and national initiatives, coupled with revised assessment packages (many of which seem to duplicate the same biases and lack of instructional utility that plagued the now despoiled traditional measures (Howell, Bigelow, Moore & Evoy, 1993; Howell & Rueda 1996; Nolet & McLaughlin, 1997) will infuse our system with truth. Nor will they automatically lead to the improvement of instruction for any student (especially students like Dan). It seems more likely that improved instruction, coupled with documentation of improved learning, will be the only satisfactory response to the conditions which underpin today's calls for change. And there is sufficient knowledge in the areas of curriculum, evaluation and instruction to bring about these improvements right now (Carnine, 1995a; Donahue, 1996; Gersten & Brengelman, 1996).

We do not always need new tools. But we may need to carefully attend to the way we ***think about*** and employ the tools we have. For example, it can probably be assumed that almost every reader of this article has participated in

an attempt to correct a student's difficulties. In some cases these problem-solving efforts have taken place while pausing in the hall on the way to lunch, in others they have come in the form of Multidisciplinary Team Meetings. Often such meetings may have been framed within a procedural format designed to move the meeting forward by specifying required activities and the order of presentation. But how many of you ever recall having the actual ***content*** of these problem solving sessions directed by a set of clearly defined analytical guidelines? Were you ever evaluated, by yourself or others, according to adherence to those guidelines? Have you been given routine feedback on the character of your thinking?

Independent of the quality of the guidelines presented in this chapter, imagine how attempts to think through difficulties might change if a set of guides, like those illustrated in Exhibits 2 and 7, were converted into checksheets. And how problem-solving might improve if, after each attempt, you received feedback based upon such checksheets (e.g., "You made four type-7 rule violations, strongly supported rule 4 and made an excellent attempt to block a type 8 error"). It might be that reading about consultation and taking workshops on communication are necessary but insufficient exercises in improving effectiveness at problem solving. Often what teachers need is what students need—defined expectations followed by guided practice and feedback aligned with those expectations (Arends, 1991). Paying attention to our own thought processes will lead to improved learning more surely than launching assessment initiatives.

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Providing Noncategorical, Functional, Classroom-Based Supports for Students with Disabilities: Legal Parameters

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Chapter 11

INTRODUCTION - PROGRAM REFORM AND NONCATEGORICAL PROGRAMMING

Since the passage of PL 94-142 and subsequent reauthorizations of the Education of the Handicapped Act (EHA), including the 1990 passage of the Individuals with Disabilities Education Act (IDEA), programs and services, as well as legal precedents, for students with disabilities have moved from physical access, program access, and finally curriculum and assessment access reinforced by the latest IDEA Amendments of 1997.

As a part of this evolution of programs and services for children and youth with disabilities and the broader educational reform efforts occurring within the states, school districts, and communities, human service systems, including special education, have been shifting from medical, clinical deficit-based "models," to more functional, classroom-based approaches. Functional, classroom-based approaches place an emphasis upon modifying the environment and curricula to meet the needs of the child with a disability, rather than focusing upon problems "within the child" that need remediation.

Many school districts and entire states, such as Iowa, have been implementing functional approaches that are disability category and placement neutral, including school-based problem solving teams and processes, curriculum-based assessment, functional assessment, co-teaching across general and special education, and modified funding systems. In addition, coordinated efforts across education and other social services are being implemented in virtually every state. Programs that are based on a functional versus deficit-based model construct, tend to be noncategorical in nature (e.g., student disability and program labels are de-emphasized).

These program reforms at both the system and classroom level are intended to effect change in providing educational services to children with disabilities. Sometimes referred to as noncategorical or problem-solving approaches, there are principles that guide these reform efforts and characteristics that are common to all of them. Many of these efforts transcend categorical programming in that they are initiatives that literally do not require a categorical system, but instead prioritize assessment and intervention activities that are more likely to lead directly to classroom-based instructional and behavioral interventions. As stated above, these are functional approaches that downplay diagnosis and classification as an end in itself, departing significantly from tenets of the medical model.

For purposes of this chapter, we identify five areas that subsume the major activities of problem solving or noncategorical service delivery. They are: 1) assessment for intervention; 2) support for intervention; 3) parent involvement; 4) problem-solving collaboration; and 5) resources for students as a part of general education.

Assessment activities focus on procedures that help provide data leading to interventions rather than those that lead to diagnosis of deficits and disability classification (e.g., curriculum-based assessment and structured classroom-based observations of the learning environment). The education of the student is a shared responsibility, and identification and education of a student as a special education student involves a joint responsibility between general and special education.

Parent involvement and professional collaboration are key components of problem-solving. Early and ongoing involvement of parents in the education of their children results in more successful interventions for students. Meaningful and non-hierarchical collaboration forms the basis for professionals and parents to work closely together toward identified instructionally- relevant interventions.

Finally, reform efforts focus instructional and support resources on students' learning and behavioral problems in general education settings. Educators adapt resources to fit the needs of the student, rather than requiring the student to fit the resources based on identified problems or deficiencies.

This chapter includes several sections and premises. First, we provide a description of the legal history of federal legislation on behalf of students with disabilities, the

description of several legal tenets or principals that have emerged in case law, and describe in some detail several major provisions of the Individuals With Disabilities Education Act (IDEA) Amendments of 1997 that support noncategorical or problem-solving approaches across general and special education, as well as education and other social and health service programs.

The sections within this chapter are included to support a first major assumption that although the IDEA requires states to provide a free appropriate public education (FAPE) for all students with disabilities, there is considerable flexibility for implementation. Although there are a number of disabilities provided, definitions and eligibility criteria, with the exception of the additional requirements for learning disabilities, are left up to the states and local school districts. The language of the current federal requirements that require tests to be validated for the purpose for which they were intended has set up a mindset that testing must be standardized and must include intelligence tests. The use of these tests, however, has occurred in the implementation of the federal law, and are not required by the federal law itself. Further, federal law has never required the use of formal, standardized assessments (e.g., those resulting in intelligence quotients), but have allowed, instead, for alternative, more functional approaches.

The Congressional intent within the IDEA Amendments of 1997 specifically clarifies the importance of gathering functional and developmental information, rather than information that will not be helpful or useful to those planning programs, services, and supports for children with disabilities. Congress intends for the educational process on behalf of students with disabilities to be less litigious and more focused on functional problem solving approaches. Further, there is an intent for special and general education to be more inclusive and for education to be more coordinated and integrated with broader educational reform initiatives and with the services of other social and health agencies.

A second overall premise of this chapter is that there are exciting innovations and initiatives across the country that are focused on noncategorical or problem-solving approaches across general and special education, as well as across education and other social and health service programs. These efforts are making significant progress toward unified and integrated service systems. A brief discussion is provided for selected noncategorical practices that have emerged across the country focusing on the major activities of problem-solving or noncategorical service delivery discussed above.

Finally, in this chapter, we discuss implications and future directions using a question-answer format. Our intent with this format is to communicate the spirit and intent of IDEA that supports noncategorical, problem solving models and to communicate the flexibility within existing federal law to support such models. There continues to be tremendous discretion at the state and local level to support approaches that are functional and based on meeting the needs of children and youth with disabilities consistent with their guarantee for FAPE.

Legal Influences

Until the late 1960s and early 1970s, states routinely denied those children with a disability access to a state-guaranteed public education. By then, the voices of protest were louder than ever before about the exclusion of children with disabilities from the public schools. The inclusion of children with disabilities in our nation's schools became a matter of national and Congressional priority. Prompted in part by the sociopolitical climate of the late 1960s, the promise of a Kennedy-inspired better nation, and the impetus of Johnson's Great Society and the judicial outcomes of *PARC* and *Mills*, the first major congressional intrusion into the public schools was in the form of the Elementary and Secondary Education Act of 1965 (P.L. 89-10). Congress assumed a leadership role in an effort to urge the states to initiate and expand their programs for those students with disabilities. Prior to 1975, these efforts took the form of grant money (e.g., Education of the Handicapped Act of 1970, P.L. 91-230), which Congress hoped would entice states to provide educational offerings to students with disabilities.

The passage of P. L. 94-142, (the Education for All Handicapped Children Act, 1975) was intended to address the failures of states to provide a free public education to its school-aged children with disabilities. The law (which actually became effective in 1977) was adopted on the heels of a funding bill that was passed in 1974. A formula grant funding system was implemented. This amended federal law required states to adopt goals that would ensure the provision of full educational opportunities to all students with disabilities. Establishing such goals was a condition for states receiving federal funds. The EHA was sweeping legislation in its mandates for the provision of FAPE for children and youth with disabilities. Included within P.L. 94-142 were comprehensive provisions with regard to how special education and related services should be delivered. The adoption of this legislation mandating an equal educational opportunity to students with disabilities, aged 6 through 17, brought with it cornerstones of service delivery that continue today to shape the practice and proce-

dures for delivering special education programs. Among those was the introduction of differential diagnosis for the purpose of differentiating types of disabilities. That, in turn, became the cornerstone for a categorical service delivery system. The categorical model of service delivery has remained essentially unchallenged for 20 years, as it was initially responsive to the most fundamental need of the disabled child— requiring their entrance in to our public schools.

In the decade following the 1970s, Congress made three substantive revisions to the EHA through reauthorization amendments. Prompted by a Supreme Court decision (*Smith v. Robinson*, 1984) that had disallowed the awarding of attorney's fees to parents who prevailed in actions brought against a school district, Congress amended the EHA with the Handicapped Children's Protection Act of 1986 (P.L. 99-372) that allowed for the award of attorney's fees.

In 1986, Congress adopted the EHA Amendments (i.e., through reauthorization) which modified the existing legislation in two major ways. First, the fundamental rights and educational opportunities provided for eligible students aged 6 through 17 were extended to those aged 3 through 5. Second, a grant program was provided to serve infants and toddlers with disabilities. Identified as P.L. 99-457, the program was restricted to children from birth through 2 years of age. These amendments to the EHA required the development of programs to provide comprehensive integrated services for infants and toddlers with disabilities or those at risk for a disability, including family services.

In 1990, Congress further amended the EHA and retitled the law as the Individuals with Disabilities Education Act (IDEA). IDEA continued the requirement that all children with disabilities be guaranteed FAPE with an available continuum of services and programs. IDEA brought several important changes, including the elimination of all references to "handicapped children," and the substitution of "children with disabilities." Additional categories of children eligible for special education services were created, including traumatic brain injury and autism. Transition services were required for students with disabilities beginning at age 16.

Finally, in 1997, Congress amended IDEA again, through reauthorization, providing us with the law we address in this chapter. The IDEA Amendments of 1997, P.L. 105-17, is the most significant special education legislation adopted in the past 22 years. The fundamental requirements of assuring the provisions of FAPE remain in place. However, the IDEA Amendments clarify that special education is not a "place," but a set of services. Special education and related services are to be more focused on student outcomes and to be implemented within broader education reform efforts. The law makes clear the importance of developing educational services that are intended to address educational needs before children are labeled as disabled, and de-emphasizes the need to categorize and label children as a prerequisite for providing services. The IDEA Amendments of 1997 move aggressively toward employing a functional approach to defining a disability depending less than ever before on a categorical approach (e.g., including information from parents in the assessment process, addressing the functional needs of students who are visually and hearing impaired, as well as those who have behavioral problems, and linking education programs with the general education curriculum).

Legal Principles

Several major principles of service delivery have emerged since the various reauthorizations and amendments of the EHA, and from judicial decisions throughout this time period. These legal principles include zero reject, individualized education program, free and appropriate education, least restrictive environment, due process and parental involvement, and nondiscriminatory evaluation. The principles provide the foundation on which services must be delivered and evaluated. We briefly review the first four.

Zero Reject. By 1971, the Council for Exceptional Children had set forth its official position regarding educating students with disabilities: "Education is the right of all children. The principle of education for all is based on the philosophical premise of democracy that every person is valuable in his own right and should be afforded equal opportunities to develop his full potential" (Burgdorf, 1980, p. 27). IDEA has as its premise, zero reject; (i.e., all children are to be afforded an equal educational opportunity and states may not deny an education on the basis of disability). The courts have made it clear that IDEA constitutes "an unequivocal Congressional directive to provide an appropriate education for all children regardless of the severity of the handicap" and that the "language and the legislative history of the [EAHCA] (today IDEA) simply do not entertain the possibility that some children may be untrainable" (*Kruelle v. NewCastle County School District*, 1980/1981, p. 695). The severity of a disability is not a reason to deny an otherwise eligible student an education. A student may not be excluded from school on the basis of a disability. If a student's behavior at school is seriously disruptive, yet a function of the disability, the district remains obligated to provide for the student's education in an educational or alternative setting.

Individualized Education Program. As a requirement of IDEA, an Individualized Education Program (IEP) means a written statement for a student with a disability that includes specific statements about the current educational level, annual goals, specific educational and related services, dates for initiation and anticipated duration, and objective criteria and evaluation procedures. The IEP is one the two key components of the law to which courts have turned, to determine what Congress meant by an appropriate education. The other is least restrictive environment.

Appropriate Education. Since the initial enactment of IDEA, the notion of what constitutes an appropriate education has proven to be one of the most dynamic and evolving principles of the law. Courts have rendered increasingly specific decisions that further define what is meant by appropriate. One of the first judicial intrusions into the murky waters of an appropriate education was *Armstrong v. Kline* (1979, appealed in *Battle v. Commonwealth of Pennsylvania*, 1980). *Armstrong* challenged the 180-day limit for instruction established by the Pennsylvania Department of Education. Plaintiffs argued that the limit was arbitrary and violated the free and appropriate education requirement. The court addressed the question of what is appropriate by turning to the requirements established by the IEP. The court concluded "that the 180-day rule precludes the proper determination of the content of free appropriate public education and, accordingly, that it violates the Act" (p. 276). The court argued that if an educational program is to be appropriate, it must be tailored to the individual needs of the child and, in this case, the IEP called for year-round education.

Two Supreme Court decisions continued the emerging definition of appropriate— decisions that were among the first dealt with by the Court subsequent to the passage of the EHA in 1975. In *Board of Education v. Rowley* (1982) the central question focused on what Congress intended to be an appropriate education. The issue dealt with the necessity of providing a sign language interpreter for a deaf child during classroom time. In this case, the Court ruled that the interpreter was not required. The Court affirmed what might be called a process definition of the IEP. That is, if the IEP is developed procedurally in a manner that is compatible with the law, it will be deemed appropriate. The development of an appropriate special education program occurs through the vehicle of an IEP, which is determined at a meeting with school professionals and the student's parents.

The importance of the IEP and its value accorded by ourt was further developed in *Irving Independent l District v. Tatro* (1984). The central question in *Tatro* was whether clean intermittent catheterization (CIC) was a necessary related service or excluded as a medical service as is provided under IDEA. The Court held that the student was entitled to CIC as a related service. Important to the question of appropriate education was the Court's taking the IEP beyond the process review established in *Rowley*. *Tatro* established that there would be judicial review regarding the appropriateness of the IEP. Going a step beyond *Rowley*, the Court made clear its intent to judge the appropriate education standard not only on the basis of adherence to procedural safeguards, but on the basis of substance and content as well. That is, an appropriate education is also judged by implementation of the IEP and whether the child with a disability is receiving some educational benefit.

Least Restrictive Environment/Inclusion. The least restrictive environment (LRE) requirement is set forth in IDEA as follows:

To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature and severity of the disability of child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. (Sec. 612, (a)(5)(A) IDEA, 1997)

A recent issue related to least restrictive environment involves the inclusion of students with disabilities into general education classes. Education in the least restrictive environment, or "mainstreaming," has in the past, meant that students with disabilities were placed in general education classes only after assignment in special education and only if their skills suggested they could succeed when cast into the mainstream. One effect of mainstreaming has been the exclusion of many students with moderate or severe disabilities and often those students with acting-out or oppositional behaviors from participation in general education classes in large part because they were unable to participate at the same rate as their peers.

More recent inclusion efforts are based on the needs of the whole student and not exclusively on academic performance contrasted with that of the mainstream students. Inclusive schooling involves the student attending the school he or she would normally attend if he or she did not have a disability and with age or grade regular education placements occurring without on-site, self-contained classes. Inclusion is based on including students in general education classes and bringing special education services in the

form of supportive services to the student, rather than pulling students with disabilities from general education classrooms. In other words, the default program/placement for a student with a disability is the general education program.

While inclusion of students with disabilities in general education classrooms appears to have attracted more professional attention recently, the expectations for this practice are long-standing. The Supreme Court, in its first examination of the IDEA, found: "The Act requires participating states to educate handicapped children with nonhandicapped children whenever possible" (*Rowley,* p. 202). The Ninth Circuit previously found the "Congressional preference for educating handicapped children in classrooms with their peers is made unmistakably clear" (*Dept. Of Educ. State of Hawaii v. Katherine D.*, 727 F.2d. 817, 1983). The Third Circuit found to deny "access to a regular public school classroom without a compelling educational justification constitutes discrimination" (*Tokarcik v. Forest Hills School District*, 665 F.2d. 443, 458, 1981).

Because Congress adopted the rulings in the right-to-education cases, (e.g., that students with disabilities had the right to access the same program and activities as students without disabilities), Congress declared that students with disabilities must be educated with students without disabilities to the maximum extent appropriate. To make sure that students were not segregated in order to receive services, and that those integrated students were not left to fend for themselves in classrooms designed for education of peers without disabilities, the Congress required that supplemental aids and services for students with disabilities be made available within the regular classroom.

The central question is whether the services needed in the segregated environment could be feasibly provided in a nonsegregated setting. "If they can, the placement in the segregated school would be inappropriate under the Act" (*Roncker v. Walter*, 700 F.2d. 1058, 1983). *Oberti v. Board of Education* (1992) at the trial level made the point even clearer that schools cannot refuse to place "special" services in "regular" settings:

> The IDEA requires school systems to supplement and realign their resources to move beyond those systems, structures and practices which tend to result in unnecessary segregation of children with disabilities. (p.1333)

In the past few years, the courts have rendered important decisions that focus inclusion questions, further interpret those sections of IDEA that bear heavily on the "least restrictive environment" mandate, and support IDEA reforms that reinforce programming in general education [illegible]es, rather than differential diagnosis and categorical placement. Recent court decisions constitute a trend that is, at least hypothesized here, supportive of program reform that brings resources to students, rather than students to the resources.

The first circuit court decision to deal with what is referred to as the "least restrictive environment" was *Roncker*, in 1983. In 1987 the Eight Circuit considered the issues in *A.W.v. Northwest R-1 School District* (1987), and the Fifth Circuit Court of Appeals adopted a standard for the questions that would be asked in *Daniel R.R. v. State Board of Education* (1989). The *Daniel R.R.* standard built on *Roncker*. Also, in 1989, the Fourth Circuit added its analysis in *Devries v. Fairfax County School Board* (1989). Two years later the Eleventh Circuit adopted the *Daniel R.R.* approach in *Greer v. Rome City School District* (1991). In 1993, the Third Circuit Court of Appeals in *Oberti* (1993) adopted the *Daniel R.R.* approach. In 1993, the Sixth Circuit restated its *Roncker* position in *Doe v. Bd. of Educ. of Tullahoma City Schools* (1993). The District Court in *Board of Education v. Holland* adopted the *Daniel R.R.* and *Greer* approaches. So, *Daniel R.R.* established important precedent.

Subsequent to Daniel's parents' challenge to his educational placement, the Fifth Circuit Court of Appeals ruled that Daniel's appropriate placement was full-time special education. The two-part test, as the court reasoned, for determining compliance with the least restrictive requirement is as follows:

> First, we ask whether education in the regular classroom, with the use of supplemental aids and services, can be achieved satisfactorily for a given child. If it cannot and the school intends to provide special education or to remove the child from regular education, we ask, second, whether the school has mainstreamed the child to the maximum extent appropriate. (p. 1048)

Daniel R.R. focused the question of inclusion within the legal parameters established by the IDEA and established one set of criteria against which actions within the schools would be judged.

Drawing on the criteria set forth in *Daniel R.R.*, the court in *Board of Education v. Holland* (1992) faced the question of whether or not a nine year old who is moderately retarded should be placed full-time in regular education classes, as was recommended by a hearing officer. In reaching its decision, the court recognized the IDEA's emphasis on individualized needs and considerations:

> Thus the decision as to whether any particular child should be educated in a regular classroom setting, all of the time, part of the time, or none of the time, is

necessarily an inquiry into the needs and abilities of one child, and does not extend to a group or category of handicapped children.." (p.878)

The court's decision in Holland was guided by factors relevant to determining if a placement is appropriate, and established by federal appellate courts:

(1) the educational benefits available to the child in a regular classroom, supplemented with appropriate aids and services, as compared to the educational benefits of a special education classroom;
(2) the nonacademic benefits to the handicapped child of interaction with nonhandicapped children;
(3) the effect of the presence of the handicapped child on the teacher and other children in the classroom; and
(4) the costs of supplementary aids and services necessary to mainstream the handicapped child in a regular classroom setting. (p. 878)

The court's decision found that the school district did not demonstrate that its proposed placement (i.e., 1/2 a day in regular education) would satisfy the legal requirement of educating Rachel Holland to "the maximum extent appropriate" with her nonhandicapped peers. The school district failed to demonstrate that "placement in special classes will provide equal or greater educational benefits to Rachel" (p. 882). In short, the school district failed on all four of the above-mentioned criteria, and the court affirmed the recommendation of the hearing officer.

Oberti v. Board of Education (1993) confronted most of the same issues that were raised in *Daniel R.R.* and *Holland*. Drawing heavily on the factors set forth in *Daniel R.R.*, the Third Circuit Court of Appeals identified three factors that should be considered in deciding whether a child can be educated satisfactorily in a general education classroom with supplementary aids and services:

(1) what steps has the school taken to try to include the child in a general education classroom;
(2) is a comparison between the educational benefits the child will receive in a general education classroom (with supplementary aids and services) and the benefits the child will receive in the segregated, special education classroom; and,
(3) what is the possible negative effect the child's inclusion may have on the education of other children in the classroom.

In this case, the appellate court affirmed that the school district did not meet its burden of proving that Rafael Oberti could not be educated satisfactorily in a general education classroom with supplementary aids and services.

Similarly, a federal district court in *Mavis ex.rel. Mavis v. Sobol* (1994) found that the school district failed to make a reasonable attempt to accommodate the student in the general education classroom with the support of supplementary aids and services. The district had no records to support regular education efforts. With no documentation to support efforts in the general education classroom the district was in no position to argue that the student was unable to function in the general education classroom.

Not all decisions have determined regular classroom settings as the appropriate program. *Poolaw v. Bishop* (1994) supported the district claim that the least restrictive environment for a student with a hearing impairment who did not read or write was the state school for the deaf. In *MR v. Lincolnwood Bd of Educ., Dist. 74* (1994), the school district argued that the appropriate program for a student with an emotional disorder was a therapeutic day school. The court agreed with the school district. Finally, when considering the appropriate placement for a 15 year-old diagnosed with ADHD and Tourettes Syndrome the Ninth Circuit ruled an off campus self-contained program was the appropriate placement (*Clyde K. ex.rel. Ryan K. v. Puyallup Sch Dist.*, 1994). Of significance is that in each of these three cases, the school district was able to provide ample evidence documenting the efforts which had been extended in the general education setting.

SPECIFIC PROVISIONS SUPPORTING NONCATEGORICAL PROGRAMMING WITHIN THE IDEA AMENDMENTS OF 1997

As stated earlier, several provisions of the IDEA Amendments of 1997 support noncategorical program delivery and problem solving approaches, rather than categorical medical or deficit models. These provisions are summarized below.

Findings and Purposes. In the findings that serve as the background and intent for the IDEA Amendments, Congress stated that "over 20 years of research and experience has demonstrated that the education of children with disabilities can be made more effective. . .(F) providing incentives for whole-school approaches and pre-referral interventions to reduce the need to label children as disabled in order to address their learning needs; and (G) focusing resources on teaching and learning while reducing paperwork and requirements that do not assist in improving educational results (Section 601(C)(5), IDEA).

Within the 1997 Amendments, the IDEA expressly places an emphasis on student outcomes, rather than paperwork and a previous emphasis on the process from iden-

tification, assessment, eligibility determination, program planning, and program implementation. There are many persons, including these authors, who welcome this shift away from special education "procedures" that have been seen, in the past, as almost an "end" rather than a "means to an end." A focus on outcomes will help reduce an unintended outcome of the past (e.g., focus on testing and labeling students with disabilities) that has reflected the medical or deficit model (e.g., problem within the child, rather than within the environment) and that has often resulted in lower student expectations.

Funding Provisions. Section 612(a)(3)(B) of IDEA, as amended in 1997, states that "nothing in this Act requires that children be classified by their disability so long as each child who has a disability listed in section 602 and who, by reason of that disability, needs special education and related services is regarded as a child with a disability under this part." Although a previous federal policy, rather than language of the law, this new provision within IDEA explicitly allows states to pursue noncategorical funding systems and programs without the "perceived" dilemma of generating funds through reporting within disability categories.

There are other funding provisions within the IDEA Amendments of 1997 that support the implementation of noncategorical eligibility, placement, and programming practices. For example, Section 613(a)(2)(D) allows local school districts to use funds received under IDEA to carry out a schoolwide program under Section 1114 of the Elementary and Secondary Education Act of 1965 (within the fiscal limitations of this section). This allows school districts to explore program options that are noncategorical, are coordinated closely with other federal and state funded programs provided within individual schools, and are part of an integrated educational "whole" (e.g., coordinated closely with the overall general education program).

In addition to allowing the use of Part B funds for the support of schoolwide programs, these funds may benefit one or more children without a disability if the IEP for a child with a disability is being carried out in the regular class or other education-related setting (Section 613(a)(4), IDEA). This provision codifies an existing federal policy that allows for limited provision of incidental benefits to students without disabilities who may be participating in activities related to IEPs of students with disabilities.

School districts may also use up to 5 percent of federal funds generated under IDEA, in combination with other funds, to develop and implement a coordinated service system designed to improve results for children and families, including children with disabilities and their families. This provision again supports functional approaches, such as noncategorical services, and to explore problem solving strategies for the coordination and integration of education, health, mental health, and social services (Section 613(f)(2), IDEA).

Evaluation Procedures. A state educational agency, other state agency, or local educational agency is required to conduct a full and individual initial evaluation to determine if the child has a disability and to determine the educational needs of the child. Informed parental consent for an initial evaluation is required before the evaluation is conducted. In conducting the evaluation, the local educational agency shall use a variety of assessment tools and strategies to gather relevant functional and developmental information, including information provided by the parent that may assist in determining whether the child is a child with a disability and the content of the individualized education program, including information related to enabling the child to be involved and progress in the general curriculum, or for preschool children to participate in appropriate activities. No single procedure shall be used as the sole criterion for determining whether a child is a child with a disability or determining an appropriate educational program for the child. In addition, technically-sound instruments should be used to assess the relative contribution of cognitive and behavioral factors, in addition to physical or developmental factors (Section 614(b)(2)(A-C), IDEA).

Tests and other evaluation materials used to assess the child must be selected and administered so as not to be discriminatory on a racial or cultural basis and provided and administered in the child's native language or other mode of communication, unless it is clearly not feasible to do so. Although criteria are provided for any standardized tests that are given to a child, the IDEA does not require standardized tests to be used. Assessment tools and strategies must provide relevant information to directly assist persons in determining the educational needs of the child (Section 614 (b)(d)(A-D), IDEA).

Additional Evaluation Requirements Related to Specific Learning Disabilities. The federal IDEA rules (current and proposed) regarding the additional procedures for evaluating children with specific learning disabilities have included the need for the team of qualified professionals to determine if a child has a severe discrepancy between achievement and intellectual abilities in one or more of the following areas: oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematics calculation, and mathematics reasoning. The team further is required to rule out a severe discrepancy between ability and achievement due

primarily to the result of a visual, hearing, or motor impairment; mental retardation; emotional disturbance; or environmental, cultural, or economic disadvantage.

Although not expressly required within the federal rules, states have operationalized these federal rules with various discrepancy models and procedures requiring formal, standardized intelligence tests resulting in an intelligence quotient (IQ) to measure ability. The establishment of an ability level within the required ability/achievement discrepancy criteria for children with a specific learning disability since 1977 has been an implementation decision, not a federal requirement. Assessment or testing resulting in an IQ for a child with a disability is not and has never been a federal requirement.

Although the language requiring the documentation of a severe discrepancy between ability and achievement for children with specific learning disabilities is the same in the proposed rules for IDEA (Amendments of 1997), hopefully, the Congressional intent for the use of functional and developmental information will reduce the dependency upon the use of formal IQ tests as a rigid implementation solution. This new Congressional intent allows for a rethinking of assessment practices within school districts shifting to more functional, noncategorical problem solving approaches.

Eligibility Determinations. The Congressional intent for the IDEA Amendments of 1997 is that labeling of students by type of specific disability is not required. The evaluation and eligibility determination provisions contained within the IDEA Amendments of 1997 specifically support approaches that focus on curriculum and learning rather than on remedial intervention approaches following the assignment of a disability eligibility category. Section 614 (b)(2)(A) of IDEA requires local school districts to use a variety of assessment tools and strategies to gather relevant functional and developmental information, including information provided by the parent that may assist in determining whether the child has a disability (i.e., general rather than specific category) and the content of the child's IEP. It is clear that Congress intends for the use of functional information that provides relevant information to "directly assist persons in determining the educational needs of the child." In the past, the "at least perceived" necessity to label students with an eligible funding disability has created an unintended outcome of testing for this purpose rather than for determining direct information to guide curriculum and instructional decisions. (Section 614(b)(3)(D), IDEA)

Link to the General Education Curriculum. There is a number of provisions within IDEA that emphasize integration and coordination of special and general education. A Congressional finding within IDEA is that "over 20 years of research and experience has demonstrated that the education of children with disabilities can be made more effective by—(A) having high expectations for such children and ensuring their access in the general curriculum to the maximum extent possible; (B) strengthening the role of parents and ensuring that families of such children have meaningful opportunities to participate in the education of their children at school and at home; (C) coordinating this Act with other local educational service agency, state, and federal school improvement efforts in order to ensure that such children benefit from such efforts and that special education can become a service for such children rather than a place where they are sent; (D) providing appropriate special education and related services and aids and supports in the regular classroom to such children, whenever appropriate; . . ." (Section 601(c)(5), IDEA)

Individual Education Programs (IEPs). The Individual Education Program (IEP) provisions of IDEA also support maximum participation of students with disabilities within general education. Specifically, IEPs for students with disabilities must contain a statement of how the disability affects the child's involvement and progress in the general curriculum. In addition, there must be measurable annual goals and benchmarks or short-term objectives related to meeting the child's needs resulting from the child's disability that will enable the child to be involved with and progress in the general curriculum. It can be argued that this required link to the general curriculum supports functional, classroom-based approaches, rather than a medical model that has, in the past, focused on remediation of deficiencies often unrelated to the general education curricula (Section 614 (d)(A) (i)-(viii), IDEA).

The IEP Team must also consider the strengths of the child and the concerns of the parents for enhancing the education of their child. This strength-based emphasis is compatible with assessment and eligibility strategies that are curriculum and instruction oriented rather than based on a medical model that attempts to identify deficiencies and specific disabilities/deficits.

Least Restrictive Environment. Although not a new provision within the 1997 IDEA Amendments, Section 612(a)(5)(A) states that:

> To the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability of a

child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.

Although this has consistently been federal policy, litigation regarding the mandates of inclusion have interpreted the intent of Congress to mean that the default programming option for a student with a disability is the general education program. Students are to be provided supplementary aides and services so that they can remain (not be put back, as in previous mainstreaming efforts) in their general education setting. A student is removed (in part or whole) from general education programming upon the thorough consideration of four factors: 1) the educational benefits of regular education; 2) the nonacademic benefits of a regular classroom setting; 3) the effect of the student's presence on the teacher and other students; and 4) the costs associated with the placement (Prasse & Martin, 1996). The implication is obvious. The traditional diagnosis and classification of students with disabilities does not automatically result in their removal from general education programming, thereby diminishing the importance of or need for a disability category as it relates to educational programming.

School Improvement Plans. Although not specifically related to the development of noncategorical assessment, eligibility, and service provision, local school districts and state education agencies have an excellent vehicle, provided for within IDEA, to explore the design, implementation, and evaluation of strategies to improve the educational and transitional results for all children with disabilities (e.g., school improvement plans). Such a school improvement plan could include the development, implementation, and evaluation of noncategorical assessment, eligibility, and service provision strategies. (Section 1413(g), IDEA)

Program Reform Initiatives

The above provisions within the IDEA Amendments of 1997 provide support for and encourage program refinements within the overall context of school reform. A component of system reform, generally referred to in the literature as problem-solving, is providing individual need-based interventions to students in general education settings without having to categorize or label the student. In some cases in which categorical diagnosis occurs, interventions are planned and implemented, not based on the category, but rather on specific educational needs. As an alternative delivery system, problem-solving methods focus on instructional support that is databased and delivered to students (both special and general education students) in general education settings.

As stated earlier, there are many collaborative problem solving initiatives throughout the country. In the following section, we briefly review three school-based programs that represent major efforts to provide educational services that are not predicated on categorical programming. These three, The Renewed Service Delivery System (RSDS) in Iowa (Grimes & Tilly, 1997), the Instructional Support Team (IST) in Pennsylvania (Kovaleski, Tucker, & Stevens, 1996), and School-Based Problem Solving (SBPS) in Chicago (Braden, Kovaleski, & Prasse, 1996), all recognize the need for interventions that are instructionally relevant and delivered in general education settings. In addition to these three school-based problem solving initiatives, a brief description is also included to capture a number of interagency initiatives across the country that are focused on the development of seamless, integrated systems of care across education and other social services. Also included is a summary of state funding system trends that are emerging to support noncategorical, problem solving approaches and integrated, unified systems of care/education.

Renewed Service Delivery System. The Renewed Service Delivery System (RSDS), as implemented in the state of Iowa, is a statewide reform effort over eight years in the making. The outcomes of this reform effort were to essentially combine general and special education in a four-tier system of service delivery. The changes that occurred, both in program design and practitioner skills, were developed over several years and were ultimately codified in a major revision of the state rules governing the delivery of special education services. According to Grimes and Tilly (1996), over 80% of the Iowa schools are involved in RSDS activities.

The RSDS reflects the important components associated with noncategorical programming and system reform. Assessment activities are designed to yield data that lead to instructionally relevant classroom-based interventions, decision making is databased, and student progress monitoring governs intervention decisions.

The RSDS is codified in the Iowa State rules governing special education. A few sections are worth noting as they are illustrative of key components of the Iowa reform. Section 42.3(7) titled "Shared Responsibility" states:

> General education and special education personnel share responsibility in providing appropriate educational programs for eligible individuals and in providing intervention and prevention services to individuals who are experiencing learning or adjustment problems. (p. 2).

Continuing, Section 41.2(8) highlights family involvement:

> LEAs [Local Education Agencies] and AEAs [Area Education Agencies] share responsibility in promoting

partnerships to increase family involvement and participation in the social, emotional, and academic development of students receiving special education.

The Iowa State rules detail an identification process that sets forth procedures for identifying students within a systematic problem solving process. Section 41.47(3) requires the use of systematic problem solving that includes description of the problem in objective, measurable terms based on systematic data collection. The focus of concern "describes the degree of discrepancy between the demands of the educational setting and the individual's performance" (p. 20). The process requires data collection procedures that "are individually tailored, valid, and reliable, and allow for frequent and repeated measurement of intervention effectiveness" (p. 20). Interventions are designed with parent input and include a progress monitoring plan. Finally, the rules make clear the requirement of general education interventions as the first line of substantive intervention efforts.

Instructional Support Team. The Instructional Support Team (IST) program in Pennsylvania is a statewide initiative that began in 1990. The Pennsylvania initiative includes a revision of the State Special Education Regulations and Standards (e.g., revisions that focus on the instructional needs of students rather than categories of service delivery). This initiative has included noncategorical names for special education programs (e.g. a learning support program rather than a program for the learning disabled).

The Pennsylvania effort was clearly designed as a prereferral program such that every elementary school develop an Instructional Support Team (IST), the purpose of which was to support "any elementary student who is experiencing difficulty in the classroom due to consistent academic, social-emotional, or behavioral problems" (Kovaleski, Tucker, & Duffy, 1995 p. 1). The IST consists of the building principal, student's teacher, and a support teacher. A key team member is the support teacher who is specially trained, works directly with classroom teachers, conducts academic functional assessments, and develops and models interventions.

Similar to Iowa, the Pennsylvania reform effort includes changes to the State regulations. Section 342.25(j) of the state rules states:

> Evaluation of students suspected of being exceptional and in need of special education services and programs that address academic skills shall include an instructional evaluation consisting of an assessment of the basic academic content that the student is expected to learn, shall yield the student's rate of acquisition and the student's rate of retention and shall result in a determination of the type and quantity of instructional support that is required to maintain the student at the student's instructional level.

This requirement clearly reflects an emphasis on instructional assessment that provides a database which yields information relevant to planning an instructional intervention. Since the IST program reflects a continuum of general education services, the type of data collected from an instructional assessment is crucial to successful instructional intervention.

As the title indicates, the IST acknowledges that today's classroom teacher needs assistance meeting the diverse academic, social and behavioral needs of students. The IST is organized to work directly with classroom teachers helping to provide a usable database and effective interventions. Strategies and tactics that are used successfully with individual students generalize to the class at large. More and more teachers, therefore, become familiar with functional assessment strategies and accompanying interventions.

School-Based Problem Solving. Starting in 1996 in the Chicago Public Schools, School-Based Problem Solving (SBPS) is a general education initiative that has the same fundamental goals as other reform efforts. Unlike the Iowa and Pennsylvania efforts, SBPS is not a special education initiative and is not, therefore, directly modifying the special education delivery system.

The project began in 50 elementary schools in 1996 with an additional 60 schools in 1997. In a manner similar to the IST project, each school identifies key personnel who will, by virtue of scheduling, be available to work directly with classroom teachers. Each of these key personnel are supported by a facilitator who supports approximately five to eight schools. Facilitators are trained in the problem-solving model and the specific skills necessary for training key personnel.

Similar to other reform efforts, SBPS is built on the essential elements of collaboration, collective decision making, and shared responsibilities. Data collection within the model is multidimensional, and includes multiple settings and multiple methods. Included are structured classroom-based observations, curriculum-based assessment, and functional analysis of behavior. A problem with respect to learning and behavior is an objective statement defined as a discrepancy between a student's current and desired performance. Interventions are developed and implemented collaboratively, and success of an intervention and of the need to modify an intervention is a databased-decision based on student progress monitoring.

School-Based Problem Solving provides the framework

for the successful implementation of a seamless delivery system where students benefit from resources provided to them in their general education setting. Intensity of resources and intervention is increased as the student's learning or social needs increase. Decisions as to which student is then in need of a formal special education referral occur within the context of a comprehensive database which documents interventions and student responses. In this manner, SBPS indirectly accomplishes the same outcomes as the special education reform programs but emanates from general education.

Integrated Systems of Care. Children with special needs often require services from multiple agencies. Koppich and Kirst (1993) indicated that "children's educational prospects, their changes for progress in school, are profoundly affected by a host of non-school factors—family support systems, opportunities for healthful recreation, and the status of physical and mental health" (p. 124).

A fundamental principle of comprehensive systems of care, emerging within communities and states, is that programs and services be seamless and coordinated rather than fragmented, specialized, overly complex, and full of gaps and inconsistencies. A recent review of state and local policies reveals that most states have some form of school-linked or integrated services in at least some communities (First et al., 1994, p. 7). These efforts have varying terms in different states and communities including full service schools, school-linked services, integrated services, interagency services, and comprehensive systems of care.

Integrated, comprehensive service planning acknowledges the interrelationship between the various components of a child's life—physical and emotional well-being, economic self-sufficiency of the family, family stability, and the ability to learn. These various initiatives attempt to serve the "whole child" and reject the traditional categorization of problems into separate categories and programs. They are family-focused, prevention-oriented, community-centered, and responsive to community needs. In addition, they offer a comprehensive continuum of services, avoid duplication and gaps in service through communication and collaboration among service providers; and are designed so that each child and family have a personal relationship with program staff across agencies (Robinson, 1990).

Successful interagency problem solving programs are also characterized by shared governance, collaborative/creative funding and planning, shared ownership by the school and other participating agencies, redefined roles and responsibilities, establishment of case managers or care coordinators and strength-based rather than deficit-model based assessment (Center for Research, 1992; Pollard, 1990).

The state of Hawaii, through the *Felix v. Waihee* (1993) Consent Decree is well into the development of a statewide, interagency, integrated system of care across education, mental health, social services, and juvenile court programs. This fall, the Hawaii State Departments of Education and Health have initiated coordinated interagency screening and referral, coordinated service planning, and interagency care coordination. In addition, parent and family involvement at all levels is being pursued through the development of local Children's Community Councils throughout the state.

Within the context of coordinated service planning, early efforts within Hawaii are being made to make screening and evaluation strength-based, moving away from medical model procedures. These strength-based interagency problem solving and coordinated service planning efforts within the assessment and service planning process will evolve throughout Hawaii during the next two to three years.

Buchard and Clark (1990) contend that "individualized care requires a shift to a more comprehensive, multilevel approach to assessment which examines the social ecology of behavior and attempts to understand youngsters by assessing the total environment in which they function." A strengths-based approach draws upon the assets of the child and family, as well as their needs.

Buchard and Clark (1990) propose four levels of assessment: analysis of the child and family's strengths; assessment of the broader social environment in which the child and family live; assessment of service needs and available community resources; and ongoing assessment of progress and needs.

According to VanDenBerg (1991), the assessment and planning process for individualized care/education involves examining needs across all life domains including: residential (a place to live), family or surrogate family, social (friends and contact with other people), educational and/or vocational, medical, psychological/emotional, legal (especially for children with juvenile justice needs), safety (the need to be safe), and other specific life domain areas such as cultural/ethnic needs or community needs. Comprehensive interagency service planning should be based on the identification of strengths and needs in all life domains. Tannen (1991) also added the need to determine the child and family's perspectives about their needs and what services and supports they desire. Friedman (1988) stressed that an ecologically-oriented assessment focuses not only on the child's problems, but on strengths and interests and helps an interagency team move away from a "placement" orientation and towards a "planning" orientation.

A number of other states and communities across the

country are focusing on the development of coordinated, integrated systems of care across education and social service agencies. Stroul, Lourie, Goldman, and Katz-Leavy (1992) provided profiles of local systems of care developed in Norfolk, Virginia; Northumberland County, Pennsylvania; Richland County, Ohio; Stark County, Ohio; and Ventura County, California. As these and other integrated systems of care continue to be developed across the country, strength-based, ecological assessment will help break down the entrenched medical model, as well as categorical labeling approaches that have essentially been implemented within agencies for the past twenty years.

Managed care has taken hold in the health and mental health fields and is increasingly influencing education as integrated local systems of care are being implemented. Generally, the goals of managed care are to reduce service fragmentation, increase access to individual services, establish accountability, reduce costs, and stimulate the development of more appropriate and less restrictive community services (Schallet, Brach, & Steel, 1997). Despite these positive goals, however, managed care can continue a rigid adherence to a medical model of care that works against behavioral models that are being embraced by children's reform initiatives (e.g., more functional, less categorical systems). The development of interagency initiatives during the next several years will continue to have the challenge of meshing or aligning a patchwork of revenue streams and service agencies that depend heavily upon categorical systems of identification and funding by at least one of the participating agencies.

Changes in State Special Education Funding Systems. The National Center for Special Education Finance (1994) has reported that when the federal special education funding shifted from a population-based system to a special education pupil county system in 1975, it was done because of the large numbers of students with disabilities not being identified and/or underserved. Although well intentioned, one unintended outcome of these funding incentives has been the over identification of students with disabilities, as well as incentives to place students in overly-restrictive educational settings. Traditional state funding formulas have necessitated labeling of students with disabilities for purposes of generating resources.

More than two-thirds of the States are currently pursuing special education finance reform (Parrish, O'Reilly, Duenas, & Wolman, 1997). States have found that there is a natural tension between separate, highly categorical funding streams, with overall education reform objectives that [illegible] more unified school approaches (McGlaughlon & [illegible]n, 1992). Categorical funding systems are beginning to disappear and are being replaced by approaches that support a more seamless set of special education, general education, and other services to meet the needs of students with special needs. A number of states have moved to allocating state special education funds on the basis of total district enrollment (Pennsylvania, Massachusetts, Nevada, and Montana). Oregon, Alabama, North Carolina, North Dakota, Montana, Colorado, Maryland, and Massachusetts have moved to flat grant funding systems. For example, students in special education within Oregon receive twice the funding received by students in regular education, regardless of their disability, where they are placed, or the types of services provided. Other states such as South Dakota, Pennsylvania, and Vermont provide funding to local school districts on the basis of a percentage of the total school age population. These identification and placement neutral systems can provide fiscal support for the implementation of more functional, problem solving, noncategorical assessment and service planning/delivery alternatives. As stated earlier, the IDEA Amendments of 1997 require states to review their funding systems to be certain that they are LRE neutral. An identification, placement, and LRE neutral state funding system does not require students to be given disability labels and report within labels for the purposes of generating funds. Movement away from categorical funding can also promote an emphasis on student outcomes, rather than the process of identifying and labeling students for funding purposes. (Montgomery, 1997; Parrish, 1995, Parrish, 1996).

Some states are exploring ways to provide local school districts with greater flexibility to implement problem solving approaches that require support for incidental benefits for students without disabilities. With federal support within the IDEA Amendments of 1997, strategies for increased local flexibility in the use of federal as well as state funds will be explored with greater vigor within the next several years. Participation within schoolwide projects will also increase within the States, partly because of language change and support within the IDEA Amendments of 1997.

PRACTICE AND THE LAW

To this point, we have provided an overview of the legislative support for noncategorical service delivery as allowed, supported and encouraged by the IDEA, as well as a legislative history, the development of legal principles, and a brief description of several provisions that support noncategorical program delivery within the IDEA Amendments of 1997. We have briefly described program reform initiatives occurring throughout the country that are respon-

sive to the many concerns of the current "refer-test-place" practice and reflect a problem-solving approach to service delivery. Finally, we addressed the importance of integrated systems and funding reform to noncategorical programming.

As a direct result of the successful reform efforts occurring in places like Iowa, Pennsylvania, and Illinois, many questions have emerged that are extremely important to understanding how noncategorical programs are compatible with legal mandates of the IDEA. Schrag, Prasse, and Martin (1994) compiled a number of these questions and answers. This chapter concludes using a similar format, integrating, for the practitioner, applied noncategorical programming with legal requirements.

Assessment and Identification

1. **Why do state and federal laws and regulations define categories (of disabilities) if a noncategorical service delivery model is allowed or encouraged by the law?**

States are required to conduct child find and to identify children who have a disability and who are in need of special education. In the past, states (and therefore school districts) were required to report students by federal categories of disability for funding purposes. Similarly, many states have had student-based funding formulas (e.g., funding generated on the basis of students reported by disability category). With the IDEA Amendments of 1997, ***Congress encourages providers with incentives for whole-school approaches and prereferral interventions*** to reduce the need to label children as disabled to address their learning needs [Sec.601 (C)(5)(F)]. In addition, Section 612(a)(B)(3) makes it clear that children do not have to be classified by disability category, for funding purposes, as long as it has been determined that the child has a disability and is in need of special education and related services. Because of the research and practice regarding the stigma and negative impact of the use of labels upon students, and because of concerns that student-based funding systems have created incentives for over-identification, several states have moved away from the use of categorical models. As discussed earlier, states and school districts are implementing strategies that focus on determining a student's educational strengths and needs rather than using categorical labels upon which to base educational programming. These new approaches distinguish between assessment and the use of categorical labels. Assessment should help identify learning needs that lead directly to effective educational interventions. Assessments, however, need not result in the use of a categorical label.

2. **When using a noncategorical service delivery model, is it legal to identify students in need of special education based on academic skills rather than on a disability category?**

Yes, it is not legally required to label a student with a specific disability in order to receive special education as long as it has been determined that the student has a disability and is in need of specifically designed instruction. The IDEA Amendments encourage a new emphasis upon teaching and learning, and a focus on improved student outcomes.

3. **Is it legal to use a noncategorical service delivery model for all age levels? Does this have fiscal implications at the federal level?**

Yes, a noncategorical service delivery model is legal for all age levels, so long as all of the protections required by IDEA regulations are met. Earlier in this chapter, we reviewed the changes occurring relative to financing special education programs. These changes include a number of states allocating state special education funds on the basis of total district enrollment, and flat rates. State education agencies will need to review their state special education funding system based on the requirement included in the IDEA Amendments of 1997 that each state review their funding system to be certain that they are LRE neutral. In short, the direction is away from a student-based categorical funding basis and toward funding systems that support programs, but are not tied directly to identified and labeled special education students.

4. **If a noncategorical system is optional for a state or even local school district, what problems are created for students moving between systems (i.e., one using noncategorical and one not)? Does this have legal implications?**

It should be noted that inconsistencies currently exist in the use of categorical systems (e.g., students may currently be considered "disabled and in need of special education" in one school district and not in another). A focus on a problem-solving model with meaningful parental involvement and cooperative planning in a noncategorical system is a strength and key solution to concerns of this type. The nature of the problems that might be created when students move between a noncategorical and categorical system will be similar to those now encountered when students move between districts. Again, as stated earlier, the emphasis now (including continuity between programs and transitions across programs) should be on teaching and learning and on strategies to improve students' behavioral and academic outcomes.

5. In a system that uses noncategorical eligibility criteria, can the parent demand that a categorical evaluation be completed? In a system that uses categorical assessment criteria, can a parent demand that a noncategorical assessment be conducted?

A parent may request that a categorical evaluation be conducted by a district that is functioning under a noncategorical service delivery model. Likewise, a parent may request that a noncategorical assessment be conducted by a district that is functioning under a categorical service delivery model. In each case, the district may refuse to comply with the request. Due process procedures are available in the event there is a disagreement between the parent and the school regarding the type of assessment to be conducted (including whether it is "categorical" or "noncategorical").

Assessment is the aggregation of multiple sources of information, including data from parents, classroom observations, curriculum-based assessment and performance on tests and rating scales. In either a categorical or noncategorical system, the focus is on making decisions about a child's educational needs. In a categorical approach, the model is driven by assigning a disability label to the child—a label that sometimes has become synonymous with the child's "program." In a noncategorial approach, the child is described in terms of educational needs, and a problem is defined as a discrepancy between current performance and desired performance. In both approaches, the child continues to retain a broad "disability" label as required by federal law. Specific disability labels or designations are not, however, required under federal law. In a noncategorical approach, however, the child is described in terms of specific academic or behavioral needs, rather than being assigned a specific disability label.

6. Is it legal for a state to allow a local school district or cooperative discretion as to whether to use a categorical or noncategorical assessment and programming system?

Federal law or administrative regulations do not preclude a state from allowing local school districts discretion to use either a categorical or noncategorical assessment and identification system as long as the state is fulfilling its obligations to ensure that all districts are providing a free appropriate public education (FAPE) for eligible students that meet the broad disability definitions within the federal regulations and federal law. As stated earlier, the IDEA Amendments of 1997 codify previous federal policy in this [illegible]y expressly allowing noncategorical approaches to [illegible]fication. Individual states may require a local school district to seek a "waiver" for implementation of a noncategorical service delivery system if the state law proscribes the service delivery system.

7. Is it legal for a state to allow a local school district or cooperative to define their own eligibility criteria?

Federal regulations do not contain eligibility criteria with the exception of the additional requirements for learning disabilities. These determinations are left up to the state as long as the state can assure that all students who meet the broad disability definitions within the federal regulations/law are being provided FAPE. However, many state laws/regulations do provide specific definitions and eligibility criteria for each disability criteria. In these situations, local school districts should seek specific state accommodation for implementation of a noncategorical delivery system.

8. Are there specific disabilities (e.g., sensory disabilities) that *must* be identified categorically? If so, does that create a legal problem by treating disabilities differently?

No. Even though sensory disabilities may be viewed as "hard categories," there is no federal requirement that they be identified categorically. Therefore, a legal problem does not exist. Regardless of disability, the emphasis of special and general education should not be on disabilities per se, but rather on responding to academic and behavioral needs.

9. Will families have access to services external to the educational system (e.g. SSI, vocational rehabilitation, etc.) if a noncategorical eligibility process is used?

Earlier in this chapter, we address the very important need of integrated systems of care. Families may not necessarily have access to services external to the educational system such as SSI and vocational rehabilitation if a noncategorical eligibility process is used if the other systems rely on categorical systems. However, the emergence of an understanding that we need a comprehensive system of care is leading states and the federal government to address these problems. As an example, the 1992 amendments to the Vocational Rehabilitation Act required that there be interagency agreements. The interagency agreements can assist in dealing with incongruence between the educational and other social service systems in such matters as access to services, reciprocal use of disability categories or other

models, assessments, etc. The existence and use of such interagency agreements and comprehensive systems of care should prevent the loss of other services to the student with a disability. Within the IDEA Amendments of 1997, school districts may use up to 5% of federal funds received under this act for developing an integrated coordinated service system. School improvement plans can also explore strategies for improving linkages and coordinated services such as those needed in a noncategorical system of services.

10. Do problem solving programs, such as the ones in Iowa, Pennsylvania and Chicago, violate the IDEA by "delaying" the identification and full evaluation of students with disabilities?

No, these programs do not delay or thwart the identification of children with disabilities for several reasons. First, as we previously indicated, parents may, at any time, request that a school district initiate a disability eligibility, as allowed for by the IDEA. These programs do not change that right. Second, within a problem solving model such as the one described in this chapter, evaluation is an ongoing activity that is closely related and responsive to the instructional process. These assessment and intervention activities go beyond the current practice of evaluation occurring only after a formal special education referral. With notification and parental involvement, assessment under these problem solving systems is a part of ongoing instructional activity and programs. Finally, many of the activities associated with problem solving delivery systems (e.g., assessment for instructional intervention, classroom-based interventions, attention to treatment integrity, and student progress monitoring) may help identify children in need of formal special education that may not otherwise have been identified.

11. Do problem solving and assessment activities associated with such programs meet the two-part federal definition of eligibility?

Yes, the problem solving approaches, as described in this chapter, can meet the two-part federal test of evaluation and special education eligibility (i.e., disabled and in need of special education and related services). In either a categorical or noncategorical approach, the child must first be determined to be "disabled." This first part of special education eligibility can be determined either by using a categorical or noncategorical process. That is to say, the determination of a disability is ***not*** dependent on a WISC-III, WRAT, HTP and VMI data base.

The second part of the eligibility test can also be dealt with within either model (i.e., determining if the child is in need of specially-designed instruction). The assessment and intervention activities that are an integral part of the problem solving system may, in fact, meet these requirements better than "traditional" assessment methods, because the assessment emphasis is on instructionally-relevant data and geared toward a clearer understanding of the child's educational needs. Finally, data collected as a part of problem solving may be used when eligibility determinations are made. Indeed, a database created as a component of a problem solving service delivery system may be comprehensive enough that additional data need not be obtained.

12. What assessment can be done at the general education intervention level that does not require parent consent?

Assessment that is routinely available for all students does not require parental consent. If it is the policy and practice of a school district to engage in assessment of children for purposes of educational instruction as part of the ongoing instructional program available to all children, and parents are notified that this is a practice within general education available for all students, assessment can be conducted without further parental notification. Specific parental consent is required if it is determined by the school that the child is suspected of having a disability and in possible need of more intensive, specially-designed instruction.

13. Can assessment data from general education interventions be used to help establish entitlement? Must additional data be collected beyond intervention data to address entitlement?

Yes, assessment data from general education interventions may be used to help establish special education entitlement. The extent to which additional data (if any) must be collected beyond the general education intervention data to address entitlement should be individualized for each child. Federal regulations require that multiple sources of data be used as part of the comprehensive evaluation process. If the assessment data collected from general education interventions is comprehensive, contains multiple sources, and meets other assessment protections of federal policy/law, additional data/information may not be needed. The extent of additional assessment and testing to be carried out for each child should be determined by a multidisciplinary team.

Due Process

1. **At what stage in problem solving/conducting interventions *must* parents be informed of their due process rights? Is this different than where it would be prudent to inform parents?**

The IDEA Amendments of 1997 clarify that parents must be involved in the assessment, as well as IEP development, implementation, and evaluation. Parental consent must be obtained for preplacement evaluation and for initial placement in a special education program. In addition, information obtained from the parent must be part of the evaluation process. Notification is required if a school district proposes to change a child's special education program.

Under a problem-solving system, there must also be meaningful parental involvement. School districts should provide general notification to parents of the approaches/strategies utilized within the district's service delivery system and the activities that may occur for all children as a function of that system (categorical or noncategorical). As a general part of system initiated notification, all parents should be notified of their right to request a special education comprehensive evaluation whether the system is operating under a categorical or noncategorical construct. Important to this question is that the process does not necessarily dictate the assessment content.

2. **What are parents' rights while general education intervention are being implemented.**

The response to this question is partially answered in the response to the above question. Problem solving service delivery systems generally include regular, meaningful and documented communication and collaboration with parents. Where changes are being considered, this is a necessary and important component. When problem solving activities are potentially available to all students who may be in need of academic and/or behavioral interventions, specific parental notification is not legally required. However, to reiterate our above point, parental involvement in the intervention activities of a student is an important component for ensuring success and improved outcomes for each student.

3. **When does the law require a comprehensive evaluation?**

When someone reasonably suspects an individual may have a disability, a comprehensive evaluation must be conducted before any action is taken related to determining entitlement for and placement in special education. As previously indicated, either a parent or school personnel may initiate the request for a full and individual evaluation. Also, as we discussed earlier, evaluation within a problem-solving approach needs to be thought of differently in the sense that it is an ongoing activity that is more dynamic and responsive to individual educational needs and not an activity that is structured to only answer eligibility questions. In that sense, "comprehensive evaluation" may take a different form than what we have generally understood that term to mean.

4. **Is there a problem with using the data collected in 504 evaluations, Title I evaluations, at risk evaluations or problem solving evaluations when conducting a comprehensive evaluation? This is especially an issue when the evaluation was conducted prior to consent for a special education comprehensive evaluation?**

No, there is not a problem using these data. Data collected in Section 504 evaluations, Title I evaluations, at-risk evaluations, or problem solving evaluations may be included when conducting a comprehensive evaluation. In some respects, this has been occurring for many years. We often use data obtained over the course of several years (e.g., test scores, grades, and teacher evaluations and comments) in comprehensive evaluations, and these are data obtained prior to parental consent but used as a part of comprehensive evaluation data. Districts utilizing a problem solving delivery system should provide a general notice stating that these data may be used when determining entitlement to special education programs and services.

5. **What are the legal requirements for involving parents in problem solving activities prior to special education evaluation?**

Congress intended to fully involve parents in the education of their child with a disability. In so doing, it is assumed that each player (parent and school official) could/would participate in a cooperative decision-making process, and parent involvement is intended to be a source of important information as well as a source of advocating for the needs of the child. Within IDEA (dating back to the passage of P.L. 94-142 in 1975), prior notice and implied consent have been required for parents so that they could notify the evaluator if she/he was going in the wrong direction, but not to just notify but to provide information about their child. The IDEA Amendments of 1997 place a new emphasis on utilizing information from parents as a part of the assessment and determination of services to be provided

for their child.

In the implementation of problem-solving approaches, school districts should provide notice to parents at two different points: the first would be a general or overall notice of the district's problem-solving activities that are a part of the general education service delivery system (e.g., notice of services available for all students). The second parent notice point would be at such time that either the district or parent decided to proceed with a formal disability determination (e.g., the child is referred for further evaluation and the possible need of more intensive specially-designed instruction).

To summarize, parental participation in a problem-solving system should be understood and thought of as substantive and not just procedural. In a traditional refer-test-place system, parental participation has often been reduced to satisfying timelines and obtaining signatures. In a problem-solving system, parental participation is ongoing and collaborative and, therefore, parents are continuously informed and involved.

6. Is there a specific time limit for the provision of general education interventions before initiating a special education eligibility referral? Are there a specific number of interventions that should be tried and who makes these determinations? Will problem solving result in delay or denial of services?

It should first be noted that there is not a federal requirement regarding a standard as to whether the provision of general education interventions constitute a delay in services for special education. This is true for either a categorical or noncategorical system. In fact, the IDEA Amendments of 1997 encourage the use of prereferral interventions and whole-school collaborative approaches. In addition, IDEA allows for the use of federal funds under this act for incidental benefits for children without disabilities as long as IEP needs are being met. Second, there is nothing inherent within a problem solving delivery model that uniquely brings up the issue of delay or denial of services. Long-standing "refer-test-place" service delivery systems could equally raise this question (e.g., witness the failure of the discrepancy definition for learning disabilities where a student may be eligible for services in one school or district, but not found eligible in another school or district).

One impetus for problem solving models is to provide more services sooner to students who are experiencing specific academic and behavioral problems. A standard of six weeks, two months, or longer is difficult to identify as each child's needs and response to problems solving intervention is different. An essential component to the prevention of the perception that the problem solving process invites delays in services for special education is parental involvement, notice and ongoing collaboration. A requirement for general parental notice regarding the type and extent of problem solving services available for all students and the right of any parent to request a special education evaluation should go a long way in preventing concerns about delays in service.

A problem solving process is not a lock step set of procedures, but rather a dynamic process in which professional/parental judgement is exercised as to when additional, specially designed instruction is needed. The standard should not be time, but rather if the instructional goals are being met and the student is making progress within the problem solving process. There must also not be a specific time requirement that must be spent in problem solving prior to consideration of different services.

7. Can a school district offer general education interventions prior to initiation of a referral to special education?

Yes, a school district may implement a problem solving approach that would support general education interventions prior to initiation of a referral to special education. In fact, the IDEA Amendments of 1997 encourage these interventions to be used and state that labeling should not be necessary to provide services. The least restrictive environment provisions of the IDEA require that the burden of proof is on the school district to document that the child's needs cannot be met in general education. Interventions for either an identified special education student or a student not identified may be offered within general education—indeed must be offered if appropriate for the student. General education interventions must be individualized for each child and be based on the child's educational needs. Under a problem solving system, the distinction between a general education intervention and special education intervention could be that of classification and intensity. The interventions may actually be the same pre and post formal special education assessment/diagnosis.

An aspect of this question raises the issue of ***requiring*** general education interventions prior to initiating a special education referral If it is the policy and practice of the school district to provide services this way and that has been a part of a general notification to parents, then requiring general education interventions prior to initiating a referral is al-

lowable. It is the authors' opinion that the emphases within IDEA (1997 Amendments) strongly encourage general education interventions prior to a referral to special education.

Conclusion

We have argued that there exists a strong legal foundation with sufficient flexibility for program reform initiatives in special education that encourage services to students without categorizing or labeling. That support is clearly found in the IDEA Amendments of 1997 and in the policy statements that accompany those Amendments. In addition, school-based practices are leading the way in changing the practice of service delivery in a manner that reflects best practice. Problem solving initiatives not only reflect best practice, but help shape the legal foundations within which educational services to children with academic and behavioral problems will function over the next decade.

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Disability Determination in Problem Solving Systems: Conceptual Foundations and Critical Components

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Chapter 12

INTRODUCTION

This chapter presents four sets of interrelated discussions. First, the rationale for and critical components underlying a problem-solving system for providing comprehensive special education services are described. This discussion describes the foundational changes in professional practice underlying the move toward a noncategorical system of special education identification. Second, the concept of educational disability is clarified in the context of three other interrelated terms. This backdrop sets the stage for the third discussion where current and potential alternate processes of conferring educational disability status are considered. Fourth, the implications of implementing a functional and noncategorical system are examined in relation to federal legal requirements.

IDEA '97 REQUIREMENTS FOR CONFERRING DISABILITY STATUS

For an individual to be identified as eligible for special education services, he or she must have both an educational disability and need for special education in order to receive a free, appropriate, public education §614 (a)(1)(B)(i &ii) (Individuals with Disabilities Education Act 97; IDEA). In IDEA, the term "disability" is defined as the status of having one of the educational disabilities covered by the Act. No further elaboration is provided. Need for special education is not defined clearly in the Act, but generally relates to an individual's ability to derive educational benefit from the educational program that is being delivered. Lack of specifications of eligibility and need at the federal level provides an important context for significant progress to be made in improving results for children with disabilities through rethinking the special education entitlement process at the state level.

UNDERLYING RATIONALE AND CRITICAL COMPONENTS OF PROBLEM SOLVING SYSTEMS

"We all know that labeling kids is not a desirable practice, but why can't we adopt a noncategorical system, use our current practices and just not label kids?" The short answer is that a noncategorical label is a ***result*** of a problem solving assessment and intervention model, not the purpose for one. The following logic set underlies this statement:

Given

- A most important purpose of assessing school-related problems is to develop potentially effective interventions (a major theme in the IDEA '97 reauthorization);
- The number of measurable human traits and behaviors approaches infinity (A review of the Buros Mental Measurement Yearbooks supports this assertion);
- There is an ever increasing number of problems in schools (Examine trends in identification rates of special education students presented in the Annual Reports to Congress on Implementation of the IDEA);
- The amount of time that can be spent assessing any individual problem in school settings is *finite* and *limited* (any practicing school professional can corroborate this assertion);

Therefore

- Assessments that should be completed for any individual problem should be prioritized using a filter of which procedures have the highest likelihood of resulting in an effective intervention;
- In most cases, assessment procedures that meet the foregoing criteria of treatment relevancy are not the same procedures that have historically been used to operationalize disability-related constructs;
- Therefore, when treatment-relevant assessments are completed in lieu of disability-centered assessments, it is often not possible to make the infer-

ences necessary to ethically confer specific disability status on an individual based on traditional disability-related constructs. Thus, noncategorical disability determination is a result of an underlying problem-solving system.

To understand how functional and noncategorical methodologies can be used in the educational identification of disability, a general problem-solving model must be described. This description is critical because adoption of a problem-solving orientation is foundational to rational use of noncategorical disability determination systems. Problem-solving systems improve on historical special education systems by assessing problems directly, providing treatment relevant information and by providing a continuum of possible resources that can be matched to problem severity. A number of problem-solving models have been developed for use in educational practice (e.g., Bransford & Stein, 1984; Ikeda, Tilly III, Stumme, Volmer, & Allison, 1996; Kratochwill & Bergan, 1990; Shinn, 1989). For the sake of this document, we have adapted a generic model of collaborative problem solving presented in previous documents (National Association of State Directors of Special Education and National Association of School Psychologists, 1994; Tilly, Knoster, Kovaleski, Bambara, Dunlap, and Kincaid, 1998). This model contains a set of concepts common to most problem-solving models, is familiar and is easily understood by most people.

The stages in the problem-solving process ask: (1) What is the problem? (Problem Identification), (2) Why does the problem exist? (Problem Analysis), (3) What should be done

Table 1. Critical Procedural Components of Problem Solving Systems

What is the problem?

- All appropriate team members participate, including parents and the student as appropriate.
- All relevant existing information is considered during problem identification.
- The problem is defined directly and environmentally (typically as the difference between environmental expectations and current performance) in addition to factoring in relevant characteristics about the individual student.
- An appropriate level of resources and precision is chosen for the assessment based on the intensity, severity, and durability of the problem.

Why does the problem exist?

- A multi-method, multi-informant assessment is completed that results in the development of plausible hypotheses regarding (1) whether the problem represents a skill or performance problem (2) why the problem is occurring in measurable and observable terms and (3) the circumstances and factors that are associated with both the occurrence and nonoccurrence of the problem.
- Testable hypotheses are written regarding problem etiology.

What should be done to address the problem?

A behavior intervention plan is written that:

- is goal directed and focused on measurable objectives;
- is based directly on the results of the assessment and the hypotheses regarding problem etiology;
- identifies who will do what, when, and how;
- contains specific methodologies for monitoring the effectiveness of the supports and interventions attempted;
- contains all specific forms, documents, and personnel support that will be required for implementation of the plan;
- fits the resources, values, and skills of the people in the setting.

Did the Intervention Work and What's Next?

- Progress is monitored frequently and repeatedly across time.
- Trends in performance are used to gauge the effectiveness of the supports and interventions.
- Ineffective intervention plans are changed in a timely manner.
- Intervention plans are modified as appropriate to address emerging needs.

Adapted from Tilly, Knoster, Kovaleski, Bambara, Dunlap, and Kincaid (1998). Functional Behavioral Assessment: Policy development in light of emerging research and practice. National Association of State Directors of Special Education: Alexandria, VA.

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to address the problem? (Intervention Planning), and (4) Did the intervention work and what is next? (Progress Monitoring and Program Evaluation). Persons engaged in problem solving assessment and intervention systematically and methodologically answer these questions through a series of well-validated practices and procedures.

To illustrate the thought process and critical touchstones of problem-solving service delivery systems, a set of critical procedural components are proposed in Table 1.

The critical components of problem solving represent the "touchstones" of practice that must be in place in any problem-solving implementation. They illustrate that a problem-solving approach to service delivery is not a specific protocol or procedure. Instead, it provides a disciplined and structured way of thinking about problems that leads directly to potential solutions. The critical components are also important to ensuring the professional and ethical soundness of a problem-solving implementation and omitting any of these components could render an otherwise sound problem-solving system ineffective.

In addition to the objective, procedural steps that are necessary for problem-solving implementation, there are qualitative dimensions of problem solving that are also foundational to implementation. Just as it is possible to create a technically correct IEP that for all educational purposes is meaningless, it is also possible to create a procedural problem-solving system that does not attain the intended purpose. In other words, problem solving is not a collection of practices; it is a systematic way of thinking about performance problems in relation to environmental demands and how to help the individual improve their success. Thus, implementing a problem solving system without understanding and acceptance of the principles and assumptions identified in Chapter 2 of this volume can result in a service delivery system that will not improve results for students and, in fact, may be less effective than the historical system implemented with integrity. Perhaps the most frequent situation in which ineffective problem-solving systems occur is when components of both historical and problem-solving systems are integrated into the same system without consideration of the fact that the systems in many ways were predicated on fundamentally different assumptions.

To assist professionals in determining the extent to which an implementation is consistent with the assumptions underlying problem solving, a set of qualitative critical components are proposed in Table 2 as a companion to the procedural critical components in Table 1.

While the foregoing two tables represent parameters that must be in place to structurally support problem-solving systems, there may be the need for additional guidance for practitioners who are working on initial implementation of problem-solving practices in their caseloads. A set of professional standards (Iowa Area Education Agency Directors of Special Education, 1994) has been created in Iowa to guide application of a problem-solving model to special education practice. These standards have been helpful both in objectively defining the beliefs and assumptions underlying problem solving practice and in providing clear, behavior-specific criteria against which any individual case implementation of problem solving can be judged. Appendix A contains a series "benchmarks" of problem solving at a practice level. Appendix B contains a set of innovation configurations (Hord, Rutherford, Huling-Austin & Hall, 1987) that assist practitioners in self evaluation as they implement problem solving practices with individual cases.

CURRENT AND FUTURE LOGIC SETS FOR DISABILITY IDENTIFICATION

Another question that arises in contemplating a functional noncategorical system is, "If we don't use disability constructs as the basis of special education identification, then how will we identify who qualifies and who doesn't?" To pursue a discussion of disability identification in the context of IDEA, agreement on terminology is imperative. Perhaps the best point of reference for the discussion is current practice. Deno (1995) discusses the term "disability" in the context of two related terms: Handicap and Impairment. An additional term, "disease process" or "injury" has been added to the previous three terms for this chapter for the purpose of presenting a complete discussion. These terms are defined based on Deno's presentation and based on a dictionary definition.

Disease Process or Injury: Webster's New World Dictionary (1974) defines the term "disease" as "a condition of the living animal. . .that impairs the performance of a vital function." The term injury is defined as "an act that damages or hurts. . ."

Impairment: As used by Deno (1995), "Impairment is a term used in reference to dysfunction in a biological process or structure" (p. 15). Similarly, Webster's New World Dictionary (1974) defines impairment using the synonym "damage." An important concept is pointed out by Deno in that "impairments may, or may not, be related to an individual's ability or performance."

Table 2. Critical Qualitative Components of a Defensible Problem Solving System.

The primary purpose of assessment is determining appropriate treatment. While it may be necessary in some systems to assess student performance for taxonomic (administrative) reasons, an underlying premise of functional assessments is that data are collected to assist in improving human performance. In some systems, administrative assessments have supplanted functional assessments. In noncategorical systems, functional assessments are primary. The only administrative assessments that are completed are done in circumstances in which the functional information cannot meet both educational and administrative purposes.

Problems are defined functionally, using low level inferences. This component requires that problems are defined in ways that describe the impact that capability or performance deficits have on critical life functions (e.g., education, employment etc.). These definitions are directly observable (rather than higher order constructs) and typically describe the difference between a person's current performance and some environmentally defined expectancy level. The requirement of low-level inferences typically means selecting constructs for measurement that are directly observable and measurable (e.g., rather than assessing for differential "reading ***abilities,***" an assessment might focus on functional reading ***skills***).

Assessment instruments and procedures assess the individual's performance in the naturalistic environment, under naturalistic circumstances. This component requires that assessment data are an accurate reflection of the individual's typical performance of critical life or educational functions in naturalistic conditions. In short, problems need to be defined, assessed and intervened within settings where their existence has caused concern.

Assessments are multidimensional and based on professional judgment. Data are collected from multiple settings, using multiple sources of information as appropriate to the specific nature of the problem. Major decisions are not made based on any single data source. Instead, major decisions are made based on ***professional's judgment*** informed by the convergence of evidence from multiple sources.

Direct assessments yield data that can be analyzed functionally to yield possible intervention recommendations. If problems are defined functionally and assessments are direct, assessment results usually can be analyzed to determine the amount and type of resources that might be needed to result in performance improvement. The analyses conducted should result in a reasonable set of hypotheses regarding problem etiology that can be used to generate interventions with a reasonable likelihood of success.

Interventions are goal oriented. In functional and noncategorical systems, it is assumed that the assessment data collected can be used for setting intervention goals. Goals include a (measurable, observable, alterable, and specific) behavior, timeline, conditions, and a criterion for acceptable performance. The criterion for acceptable performance is selected based on a comparison between the current level of individual performance and the demands of the setting.

Interventions are least intrusive and most effective. The least intrusive intervention that works is best. Thus, less intrusive/intensive interventions will usually be tried prior to implementing more intrusive/intensive interventions. The logic is as follows. No matter how well an assessment and analysis is done, it is not possible to know prior to implementation whether an intervention will work or not. Thus, the argument that more intensive interventions are necessary can usually only be supported when it has been demonstrated (preferably with data) that the problem is resistant to well designed, well implemented interventions at a less intense level (extenuating circumstances notwithstanding).

Assessment is both summative and formative. Assessment data collected in a problem solving system must both contribute to problem identification and analysis as well as provide information about the effectiveness of the selected interventions. Progress must be monitored frequently and repeatedly across time, and interventions must be modified in response to formative evaluation data.

Administrative decisions are made in a research-based and straightforward manner. In all cases, the rationale for disability identification criteria are clear. This component requires that administrative decisions (i.e., special education entitlement decisions) must be made reliably, based on the appropriate disability model (i.e., a medical model or a social system model). For disabilities that are defensibly definable using a medical model this model would be used to determine the presence of disability (usually this information will have been collected by professionals outside of the educational setting and the disability label brought to the school). For disabilities that are defensibly definable using a social system model, a social system model would be used, using functional assessment information would be used for both disability determination as well as need identification. In either case, criteria for both determining disability presence as well as criteria for defining educational need must be clear and defensible.

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Disability: Webster's New World Dictionary (1974) defines disability as "that which disables" and disable as "to make unable." Deno defines "disability" as "conditions of the individual referring to the fact that their level of competence, performance, or ability to do something is consistently and significantly lower than their peers." (p. 17)

Handicap: Webster's New World Dictionary (1974) defines handicap as "to cause to be at a disadvantage." Deno states that "Handicaps are problems" and further clarifies his definitions by stating that "handicaps are a difference between what someone does (or can do) in a particular situation, and what is required for the person to be successful in meeting the demands of that situation." (p. 13)

These four terms are interrelated but have different shades of meaning that are important to discriminate as they relate to disability diagnosis in educational settings. They will be used consistently throughout the following discussion of disability identification processes.

There are two different models of disabilities that are relevant to the current discussion: the medical model of disabilities and the social system model of disabilities (see Reschly & Tilly, Chapter 2 this volume). The American special education system serves students with both types of disabilities: some disabilities that can be identified validly using the medical model, others that rely on a social systems model for identification. Chapter 2 of this volume discussed differences between the assumptions, inferences and implications of the different systems. This chapter will extend that discussion by illustrating ***how*** the two systems are used to identify disabilities and then will demonstrate how a problem solving system is used in the special education entitlement process for all disabilities covered by IDEA '97, resulting in a noncategorical service-delivery system.

Process for Identifying of Medical Model Disabilities

Medical model disabilities typically represent biological anomalies that affect behavior directly, ***causing*** individuals to be at a disadvantage in important life domains (e.g., mobility, independence, self care etc.). Consider the medical disability identification process illustrated in Figure 1.

In the medical model, a physiological disease process or impairment is commonly assumed to cause the disability and resulting handicaps. With this assumption, when a medical problem occurs, a search for pathology ensues. Sophisticated and precise tests are run to confirm hypotheses about the presence of a disease process or impairment. These tests typically focus on measurement of biological structures and processes or on documenting the presence of a disease-causing pathogen. Quite often, this search can be expensive and intrusive to the patient. Indeed, most of us subject ourselves willingly to medical tests and procedures that violate our physiology, our dignity and our bank accounts. We do this because in most cases the benefits of the results outweigh the inconvenience and the information has a link to the treatment process. Once the pathology underlying the problem is identified, the most effective treatment can usually be selected. This is the classic Aptitude by Treatment Interaction process. In medicine, this strategy works remarkably often in treating medical problems.

Figure 1. Medical Model Diagnostic Process

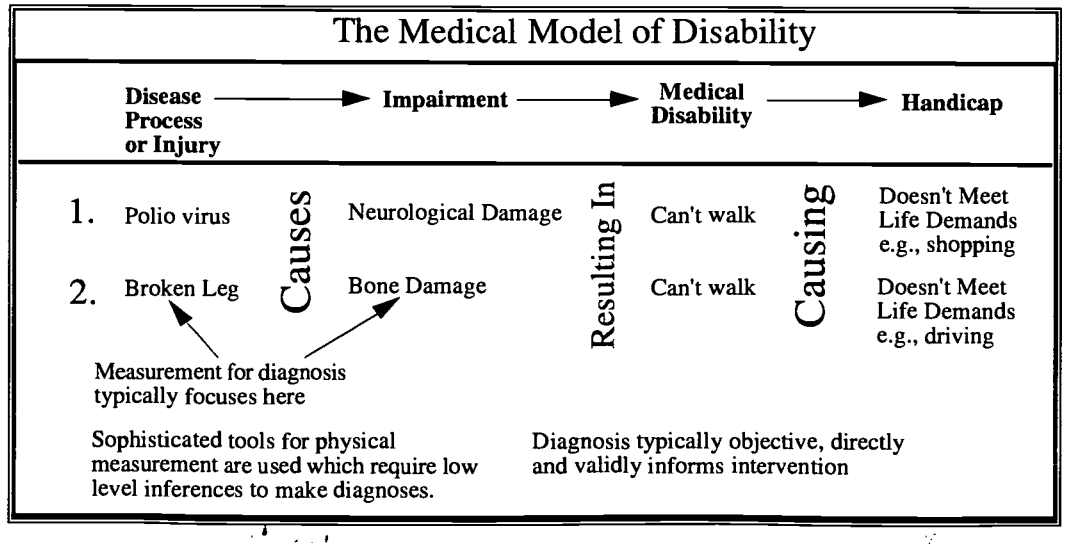
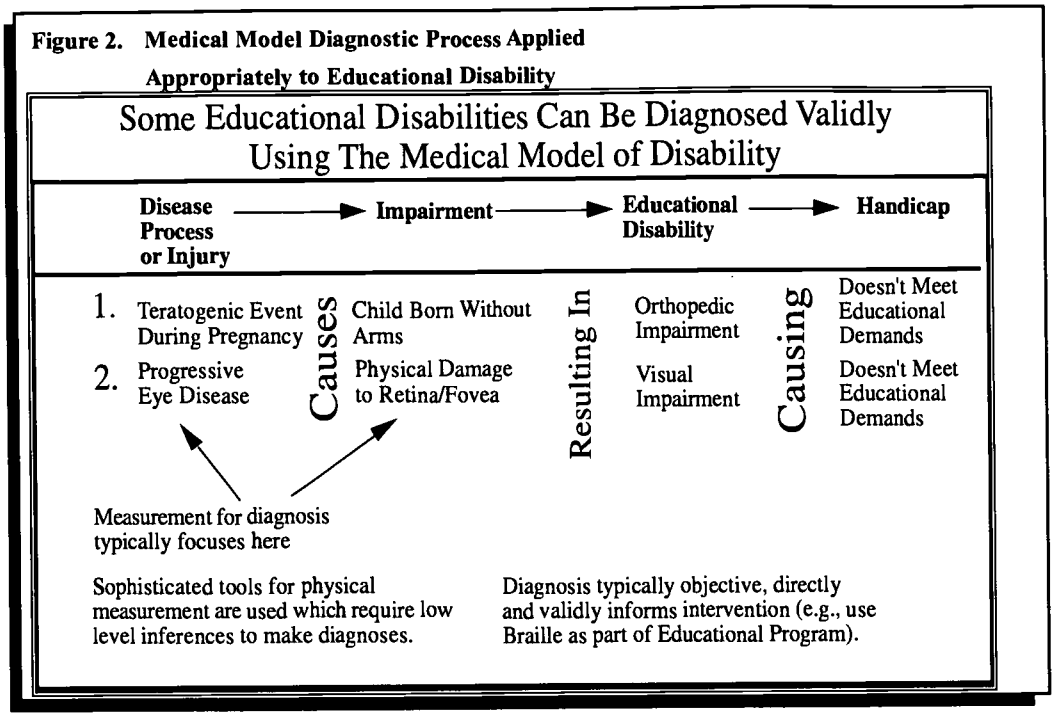


Figure 2. Medical Model Diagnostic Process Applied Appropriately to Educational Disability



And as such, it represents a professionally defensible treatment-oriented disability identification system.

For some educational disabilities, where objective measurement of disease or impairment is possible, medical model processes and assessment practices can suffice for diagnosing disability. Figure 2 illustrates this process.

Note in these cases that the disability diagnosis is made based on conditions that are directly measurable at the level of *disease process and/or impairment* and that these physical conditions result in a disability that is educationally disadvantaging (not purely medical disadvantage). In these cases, educators are the recipients of the diagnoses and most often need not conduct sophisticated assessment procedures for disability diagnosis. Instead, it is often their task to translate medical diagnoses into educationally relevant ones so that special education entitlement can be conferred if necessary.

Problem Solving Methods in Identification of Medical Model Disabilities. In cases in which a medical model works for disability determination, it is valid and important to recognize the medical/physical condition underlying the educational disability, both from the standpoint of understanding the prognosis as well as using the medical diagnosis in treatment planning to the extent possible. With medical model disabilities, such as hearing, physical or visual impairment, assessments at the level of disease process or impairment (the disability prong of the two-pronged entitlement test) are combined with extensive data collected cument the effects of the disability on educational performance (the need component of the two-pronged entitlement test). Taken together, these data sets often meet the IDEA requirements for a comprehensive evaluation.

In relation to the medical model disabilities, the major divergence from a traditional "psychometric" approach to assessment is the manner in which the need component of the entitlement test is addressed. Problem solving assessment typically takes a more direct approach to the measurement of need than has been the case in historical special education practice. For example, rather than giving a test that covers a broad range of academic domains (albeit limitedly), an assessor with a problem solving orientation may engage in assessment activities more tailored to the student's unique needs and situation. Interviews with teachers and parents, record reviews, and observations of a child's performance in school might be completed with a specific focus on the behaviors of concern. The results from these procedures might be used to direct a curriculum-based assessment of the child's performance in academic areas related to the disability. These data may in turn be compared to local norms to gauge the impact of the disability on the child's performance compared to local expectations. Further, direct observations or rating scales of performance across different environments might be conducted to gauge the impact of the disability across settings; and ecological analyses of the educational environment might be conducted to determine factors related to student success. If educational need for specially designed instruction is not clear and present, the child's performance might be systematically monitored over time to gauge the effectiveness of adjustments made to general education curriculum, instructional strategies, or educational environmental manipulations. Based on initial data collection and formative evaluation of progress, a series of hypotheses might be created to guide instructional planning. These strategies and other direct methodologies would be completed as appropriate to determine not only which educational domains are most affected by the disability, but also which skills the child has and where instruction should begin. As noted earlier, the assessment is tailored to student needs

and is guided by the goal of determining appropriate educational interventions.

Identification Process for Social System Disabilities

For a number of important reasons, the identification process used by the medical disability model does not work effectively for social-systems disabilities (e.g., Mild Mental Disabilities, Learning Disabilities, Emotional Disturbance etc.) For these disabilities, researchers have yet to identify consistent, objective, measurable disease processes, injuries, or impairments shared by all members of the category, that can be used validly for diagnosis and treatment. As a result, the medical model process of measuring physiological variables at the level of disease process or impairment is simply not possible given current technologies. Due to these limitations, the social systems model of disabilities uses a very different process for disability identification. The presence of social systems disabilities must be inferred from an individual's performance in a specific context. Consider the social-systems disability-identification process in Figure 3.

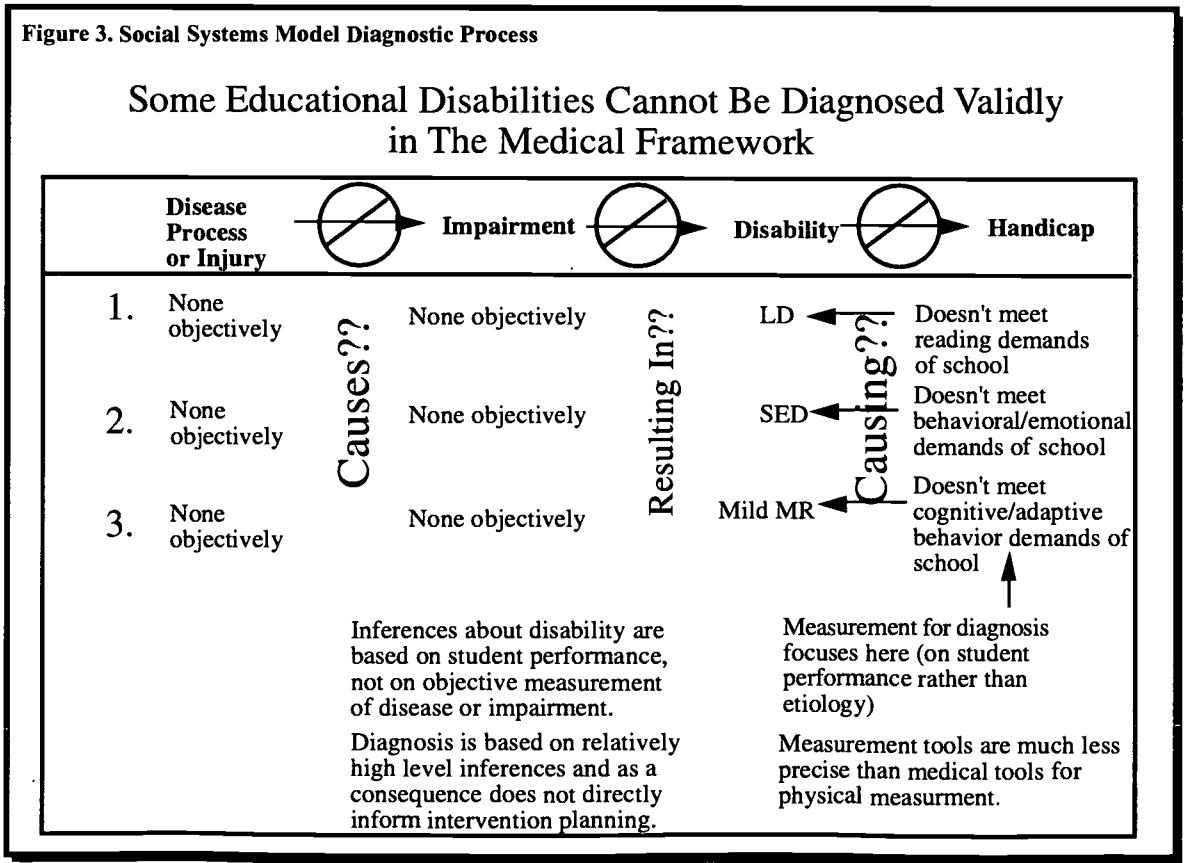
For social systems disabilities, assessors are forced to ***infer*** disability presence from student performance, rather than linking disability to a directly measurable disease or impairment. Measurement for diagnosis focuses on student performance variables rather than on physical ones. Historically, assessors focused on variables such as student performance on IQ test items, student responses to academic achievement items, or student performance on copying shapes on paper. Typically, individuals' responses to these tasks were scored and used to make inferences about higher-order constructs such as intelligence, adaptive behavior or personality traits.

An individual's pattern of results on these higher-order constructs then was compared to a series of "construct templates" that define criteria for presence of a specific disability. Two characteristics of these construct templates are important. First, the constructs used in any specific template were defined legally in federal and/or state regulations, thereby establishing general assessment targets. For many years it was presumed by many practitioners and policy people that these targets were the de facto list of "that which was to be assessed" to identify presence of disability. A second characteristic of the "construct templates" was that the specific criteria against which they were compared was set arbitrarily by states based on social policy needs and priorities. In short, no universally accepted combination of scores that clearly differentiate students with social systems disabilities from those without disabilities exists. Indeed, each state is required to define the criteria for existence of social systems disabilities locally, leading to large variations in incidence of social systems disabilities across states (see chapter 2).

Problem Solving Methods for Identifying Social Systems Disabilities

Problem solving assessment (PSA) procedures identify social system disabilities in the ***same way*** that histori-

Figure 3. Social Systems Model Diagnostic Process



cal practices have: by basing inferences about disability presence on performance-based assessments. There are two major differences however. First, problem solving assessment procedures are held to a higher standard of validity than are traditional psychometric assessments. Problem solving assessments must have a research base supporting their use not only for identification of individuals with disabilities, but also for planning effective individualized interventions and monitoring the effectiveness of interventions. This higher standard of validity has been referred to as an "Outcomes Criterion" in the literature (e.g., Reschly & Tilly, 1993). Stated simply, the outcomes criterion requires that all human services be evaluated in light of the outcomes produced for the recipients of those services. The more related a procedure is to improved outcomes, the higher the rating on the outcomes criterion.

The second difference between the historical social system identification model and a problem solving model lies in the assumptions underlying the assessment and intervention process and the level of inference made by assessors. In the historical model, constructs targeted for assessment were primarily defined by regulatory definitions of disability categories (e.g., Specific Learning Disability, Serious Emotional Disturbance, etc.). These domains typically were assessed using nationally normed instruments (e.g., Global Intelligence Tests, Global Measures of Achievement, Personality Tests, Perceptual Motor Tests, Nationally-Normed Rating Scales, etc.) that are significantly less precise and require higher levels of inference in their interpretation than their medical model counterparts (Howell, Fox & Morehead, 1993).

In a problem-solving system of assessment and intervention, presence of educational disability is based on professional judgment, informed by the convergence of evidence from multiple sources. Entitlement criteria are based squarely on a core set of social values and assumptions regarding who should receive special education and are informed by the best technologies measurement science has to offer at any given time (cf. Shinn, Good & Parker, chapter 4 this volume). To this end, a prudent set of entitlement criteria should not be rigid nor lock step in its approach and application.

Historical identification procedures in some cases misrepresented the precision with which social systems disabilities were identified, sometimes resulting in over reliance on eligibility criteria and not enough on professionals' judgments. Consider the case of states that adopted a regression model for identifying Specific Learning Disabilities. Sophisticated statistical procedures were used to operationalize intraindividual differences. The effects of regression on individual scores and discrepancy scores was taken into account, the reliability of and correlation between different tests was accounted for and impressive tables were created that "defined" learning disabilities. In some applications these tables were used as a rigid criteria against which disability was scaled, and many students with severe achievement problems missed "qualifying" because they missed the discrepancy cutoff by a trivial and meaningless number of discrepancy-score points. The reality of that system was, however, a core set of social values was represented in the tables because somewhere, someone had to define the size of the "severe discrepancy" that warranted disability classification. In essence, the statistics obscured the social values underlying the identification process.

It is the perspective of these authors that eligibility criteria that confer disability status in social systems such as education should clearly communicate the core values upon which they are based. This logic is pervasive in other social-policy making fora. For example, families who receive support under the Aid to Families with Dependent Children program are made eligible for these supports based on a clear set of eligibility criteria that communicate a set of social values about who should receive such aid. These values are that those in most need based on family constellation and income levels should qualify to receive help. Those with less need do not. Other educational programs operate clearly from a similar set of values, from the Federal Title I program, to Students at Risk programs, to Drug-Free Schools programs, those with the greatest degree of need receive priority for funding and service delivery.

To illustrate how these concepts might translate into defensible eligibility criteria for special education, a series of components are proposed in Table 4, rooted in a problem-solving model of practice, that can serve as a structure for considering special education entitlement in a functional and noncategorical system. Instead of specifying specific tests or procedures that must be completed in every case, a general structure for data collection that would be applied to every case is specified. Within this structure, general guidelines for different sources of data are specified along with performance criteria to inform professionals' judgements. Decisions regarding specific methodologies used for assessment and entitlement are based on team judgments.

Once this data base is collected and summarized, teams are in an excellent, data-based position to use their professional judgments to answer questions related to both the presence of an educational disability and the need component of special education.

Table 4. Major Components of Functional And Noncategorical Disability Identification Procedures

In a functional and noncategorical system, disability status is conferred by a team of individuals, including parents, who base their judgments on objective and subjective data from multiple informants and procedures. Specific standards for the nature and quantity of the data base upon which teams will base their decisions should be specified by local consensus. Moreover, a set of standards to guide team decision making should be specified. These parameters serve to ensure that a sufficient breadth and depth of data are collected prior to entitlement decision making. At a minimum, the following sources of data should be present:

- **Evidence of resistance to reasonable general education intervention efforts** (e.g., see Gresham, chapter 5, this volume). Because the entitlement test requires that both disability and need be present, resistance to general education intervention is a critical component for entitlement to special education. In most problem solving systems, a system of general education interventions is put in place to attempt to resolve problems at the least intrusive, least restrictive level in a system. Rate of learning in this case is the indicator of most interest. If the general education intervention is effective and results in acceptable rates of learning, the question of whether the student has an educational disability is moot, since perhaps the best way to demonstrate lack of need for special education is for the student to make meaningful improvement given a reasonable engagement of general education resources. Iowa for example requires that a general education intervention be conducted prior to a teams' considering special education entitlement. Specific language from §41.48(2) of the Iowa Administrative Rules of Special Education states:

  General education interventions. Each LEA, in conjunction with the AEA, shall attempt to resolve the presenting problem or behaviors of concern in the general education environment prior to conducting a full and individual evaluation. In circumstances when the development and implementation of general education interventions are not appropriate to the needs of the individual, the multidisciplinary team may determine that a full and individual evaluation shall be conducted. Documentation of the rationale for such action shall be included in the individual's educational record. The parent of a child receiving general education interventions may request that the agency conduct a full and individual evaluation at any time during the implementation of such interventions.

  a. Each LEA shall provide general notice to parents on an annual basis about the provision of general education interventions that occur as a part of the agency's general program and that may occur at any time throughout the school year.

  b. General education interventions shall include teacher consultation with special education support and instructional personnel working collaboratively to improve an individual's educational performance. The activities shall be documented and shall include measurable and goal-directed attempts to resolve the presenting problem or behaviors of concern, communication with parents, collection of data related to the presenting problem or behaviors of concern, intervention design and implementation, and systematic progress monitoring to measure the effects of interventions.

  c. If the referring problem or behaviors of concern are shown to be resistant to general education interventions or if interventions are demonstrated to be effective but require continued and substantial effort that may include the provision of special education and related services, the agency shall then conduct a full and individual evaluation.

- **Evidence of a severe discrepancy from peers' performance levels in the area(s) of concern.** This criterion relates to the overall level of the student's performance in the domains of concern. In a problem-solving system, ecologically-sensitive assessment targets are selected and an individual's performance is compared to local normative standards as to what constitutes typical performance. Specific criteria for defining degree of discrepancy from peers' performance are set locally and typically might be general guidelines rather than absolute cutting scores. For example, one Iowa agency has defined a guideline for extreme low performance in basic skills academics as at or below the 10th percentile compared to peers on a test of basic skills academics. It is important to point out that the criteria does not state specific methodologies to be used. Indeed, for most students with severe discrepancies from peers' performance multiple sources of data are available and should be used to document performance level discrepancies. Examples of indicators that might be used to address this criterion include performance on CBM basic skills tasks, performance on the Iowa Test of Basic Skills compared to Iowa norms, a series of permanent products in the area of concerned, direct observations of student behavior in the performance domain, and an interview with the child's general education teacher and parent about the student's performance compared to other children.
- **A data-based description of the resources necessary to improve and maintain the individual's rate of learning at an acceptable level.** This component requires teams to define operationally the conditions under which the learner's learning is enabled. For example, answers to questions such as the following may be provided. At what level of the curriculum can the individual be instructed successfully? What specific skills or strategies will need to be remediated as a component of the educational program? What specific strategies assist the student in linking new learning to old learning? What environmental conditions are related to improved student success (time of day, instructional set up, instructional methods, physical settings, etc.). Which incentives promote optimal performance for the student? How many repetitions of new concepts are required when introducing new concepts? And the list goes on. The idea here is that a thorough problem analysis in the problem solving process should yield a series of testable hypotheses regarding both problem etiology ***and*** likely problem resolution strategies. When these hypotheses are translated into intervention strategies with a high likelihood of success, the nature and amount of resources necessary to support the learners' learning can be estimated. Requiring that teams assess for the purpose of intervention prior to eligibility determination both serves to require treatment relevant information to be present at the decision making meeting and to help determine the magnitude and nature of resources needed to address the problem. These discussions in turn assist teams deciding about both disability status and need for special education.
- **Convergent evidence logically and empirically supporting the teams' decisions.** This component requires that teams collect broad-based information related to the problem in addition to the targeted information collected to satisfy the initial three criteria. Information may be collected through any combination of Record Reviews, Interviews, Observations or Specific Testing in relevant areas. In one system in Iowa, a requirement has been set that at least three of the four convergent data sources must be provided, in addition to the previous three data sources, prior to entitlement decision making.

The problem-solving approach offers a number of advantages compared to the rigid identification practices in prior systems. First, when teams have collected data sufficient to meet the criteria listed in Table 4, a much broader, deeper, and more relevant assessment will have been completed than has been the case in the past. This approach honors the information provided by parents and teachers to the same degree that it honors testing scores that used to serve as major criteria in identification of educational disability. Second, lack of specific cutting scores for individual components of the system force decisions to be made based on professionals' judgments informed by a convergence of evidence. The process also highlights that for all of procedures used in disability identification, error is always present. In short, there is little danger that scores on specific test(s) will become the de facto standards for entitlement, because specific, required "patterns of scores" are not the basis of entitlement decision making. Third, this system allows more professional flexibility in selection of assessment methodologies, which typically results in a better match between assessment methods used and the presenting problem. Indeed, there is much less proceduralism involved in the assessment and intervention process and far more reliance on professional judgments. In practice, this shift places ***greater responsibility*** on professionals to ensure the integrity of the assessments but, when done well, also improves the probability of the desired educational results for students.

LABELS AND FEDERAL REQUIREMENTS

A final issue that sometimes arises when contemplating movement towards a functional and noncategorical system is "But don't we need labels to receive federal special education dollars?" To answer this question, a discussion of the various uses of the labels contained in IDEA '97 will be pursued. There are at least three different uses of special education labels. First, each state is required to report the number of children within their state to the federal government one time each year, by special education disability category. These numbers are used in the process of funding states to support the education of children with disabilities. While there is a requirement that states report by category, there are a number of means by which this reporting might occur. For example, in cases where children are identified with disabilities without a specific disability label, states can apportion these children across the disability categories based on historical averages.

A second use of labels historically has been to assist in ient planning for individuals. In 1975, eleven different disabilities were identified in the Education of the Handicapped Education Act (EHA; P.L. 94-142). It was the assumption of the time that identification of specific disability was critical to complete understanding of individual educational problems and consequently to the identification of effective educational treatments. Thus, national policy was crafted causing education agencies to search for the underlying within-person causes of school-related problems and to categorize them for the purpose of determining appropriate educational programs. As detailed earlier in this chapter the assumption that social system disability labels could be used for this purpose has not been supported. Indeed the search for pathology has deflected limited resources away from assessments that might yield a better understanding of functional student learning needs (National Coalition of Advocates for Students, 1987; National Association of School Psychologists and National Coalition of Advocates for Students, 1985).

While the assumption of disability type interacting with specific intervention needs was arguably an assumption underlying the original law, at least three recent administrations of the federal Office of Special Education Programs (OSEP) have made it clear through policy letters that labels are not required to be conferred on individual children in order for them to be entitled to special education. Perhaps the single best discussion of labels from an official perspective was provided in a letter from Dr. Thomas Bellamy, former Director of OSEP, to the question of "What is the purpose of assigning categorical labels to children receiving special education under P.L. 94-142?" The entire text of that letter is contained in Appendix C. In the current discussion, a most important passage from that letter states that:

> Whatever other purpose might be intended by agencies that publicly label children according to the category of their disability, the obvious utility of any labeling system is to identify characteristics universally shared with other children, not to identify characteristics unique to each individual child. The unavoidable consequence of such a labeling practice is to identify and plan to meet each child's educational needs on the basis of what that child has in common with other children similarly identified rather than on the basis of that child's individualized needs. Thus it is the view of this office that any labeling practice that categorizes children according to their disability in order to facilitate the individual determination of any child's appropriate educational needs or services will be presumed to violate the protections accorded under Federal and State laws. (211 IDELR 440)

From this statement, it is clear that though it might have

been a common assumption that planning to serve students based on characteristics of their disability was reasonable professional practice, doing so was a direct violation of state and federal law. Recognizing that labeling practices in some cases has been problematic for individuals, Congress codified OSEP's long-held position on labels with the passage of IDEA '97. The critical passage from the statute reads:

> Nothing in this Act requires that children be classified by their disability so long as each child who has a disability listed in section 602 and who, by reason of that disability, needs special education and related services is regarded as a child with a disability. IDEA '97, §612(a)(3)(B)

A third use of labels is related to individual evaluations and the child find provisions in the law. The disability categories in IDEA '97, though not prescriptive enough to prescribe specific evaluation criteria for specific disability categories, provide important information that states have used to define their child-find policies and procedures. The federal definitions provide a series of "assessment targets" for each disability that have been operationalized by states in various ways. These operationalizations serve a social policy function in that they define who is eligible to receive special education within a state and who is not. They also provide an important assurance to the federal government that all children who fall within the range of the disabilities defined by IDEA are being served by the state.

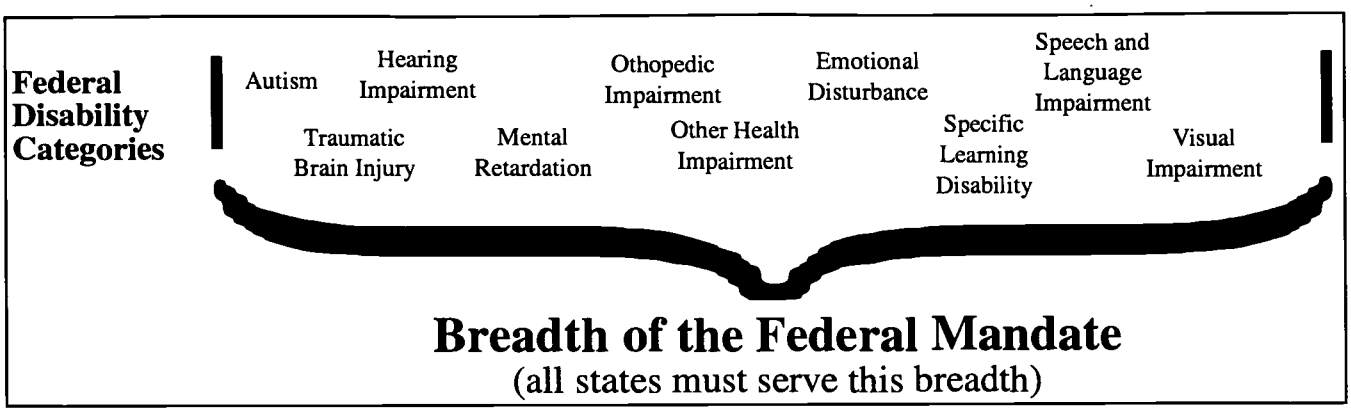
Noncategorical systems of service delivery must provide appropriate assessments to all students who need them, just as categorical systems do. In the absence of categories, functional and noncategorical systems must explicitly articulate how assessment targets will be defined and demonstrate how this conceptualization serves all of the children intended by the law. The final section of this chapter describes how these requirements can be met within a functional and noncategorical service delivery system.

Assessment Targets. In a problem-solving, noncategorical service delivery system, assessment targets are selected to assess functional performance in one or more of the seven human performance domains described by Reschly (1987). These performance domains include: academic achievement, social behavior and emotional adjustment, communication/language, sensory status, intelligence, motor skills, and health status. Selection of specific assessment targets is based on demonstrated skill or performance problems in a performance domain, rather than based on some set of underlying characteristics presumed to define specific disability type. This method of acquiring assessment targets has a number of important implications. First, it requires that the educational need prong of the two-prong entitlement test be dealt with first by assessors, prior to making inferences about disability. While IDEA '97 continues to require determination of both disability status and need for special education prior to conferring entitlement on any individual, the law does not prescribe an order in which these two tests must be attended to. Hence, for a child experiencing problems in a general education setting, if a direct assessment is conducted for the purpose of general education intervention (i.e., specification of need in an educationally relevant area), and the resulting general education intervention is successful in remediating the student's skill or performance problem, the question of disability status is moot. An individual may in fact have an IDEA-eligible disability. However, if they do not need special education in order to receive a free, appropriate, public education (FAPE), they are not entitled to special education services.

Another implication of selecting assessment targets based on educational need is heightened directness of assessment and assessment conducted only in areas related to identified need. Quite often in a disability-driven system of assessment and identification, assessments are not differentiated for individuals. Instead, a standard battery of tests is given to all individuals suspected of having a disability. The presumption is that all persons with the same disability share similar characteristics and therefore should be assessed on a standard set of instruments. This practice often causes expensive assessment procedures to be conducted for every referred student, whether or not the tests measured relevant targets for any individual in question. This "standard battery" is extremely expensive in terms of student learning time and assessor time. Moreover this approach consumes important time that the assessor might use to conduct more treatment-relevant assessments.

In a problem solving system, not every performance domain is assessed for every individual, thus providing more time for in-depth assessments in areas where they are warranted. The benefit of this approach is that assessments are tailored to individuals, their situations, the domains where problems are occurring, and the suspected nature of the performance problem (and potentially the disability). More direct assessments are conducted than are typically available through a traditional psychometric assessment. The term "direct" in this context refers to the nearness of the behaviors assessed to the behaviors that are considered to be problematic in the educational environment. This approach is directly compatible with the requirements of IDEA '97 in that assessments are conducted only in areas "related to the suspected disability" §614(b)(3)(C). This process also allows more in-depth analyses of an individual's

Figure 4. Illustration of Breadth of the Federal Mandate.



performance, which in turn will allow teams to make accurate disability determinations, based on clearly articulated needs-based eligibility criteria.

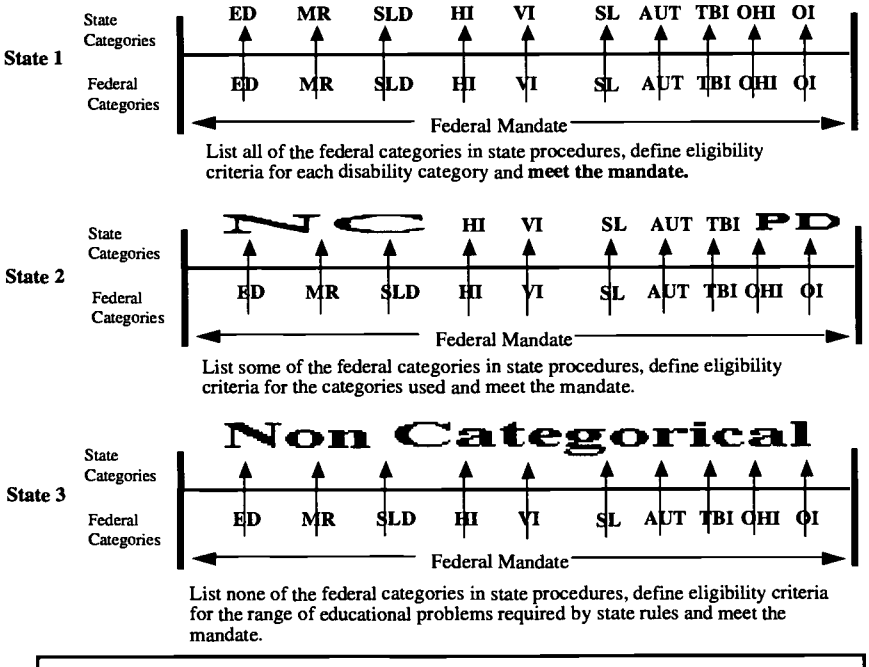
Breadth of the Mandate. To demonstrate that a state's approach to noncategorical service delivery meets the breadth of the IDEA '97 mandate, an analysis of how the federal government allows states to define their service delivery system is provided. Figure 4 illustrates graphically the breadth of the disabilities that are contained in IDEA '97.

The federal government has been extremely permissive in the ways that states have been allowed to meet the breadth mandate. As Tom Hehir, director of OSEP during the Clinton Administration, stated in a policy letter:

Part B does not require States to label children. The definitions of "children with disabilities" at 34 CFR §300.7 must be used by States to prepare annual data reports for the U.S. Department of Education regarding the number of children in the State receiving "special education" and "related services" under the Part B program requirements. The Department has no objection to a State's use of categories which differ from those specified in Part B or, if it elects, the use of a noncategorical approach ***so long as those children eligible under Part B are appropriately identified and served*** (23 IDELR 341) (emphasis added).

This federal position has resulted in states operationalizing their service delivery systems in various ways. As Figure 5 illustrates, a range of options could be used by states. This concept is illustrated using three different states as examples. Variations in identification systems are used to meet federal requirements.

Figure 5. Possible Approaches to Meeting the IDEA '97 "Breadth of The Mandate Requirement"



Key

ED = Emotional Disturbance	VI = Visual Impairment	OHI = Other Health Impairment
MR = Mental Retardation	SL = Speech and Language Impairment	OI = Orthopedic Impairment
SLD = Specific Learning Disability	AUT = Autism	NC = Noncategorical
HI = Hearing Impairment	TBI = Traumatic Brain Injury	PD = Physical Disability (not a federal category, used for illustration)

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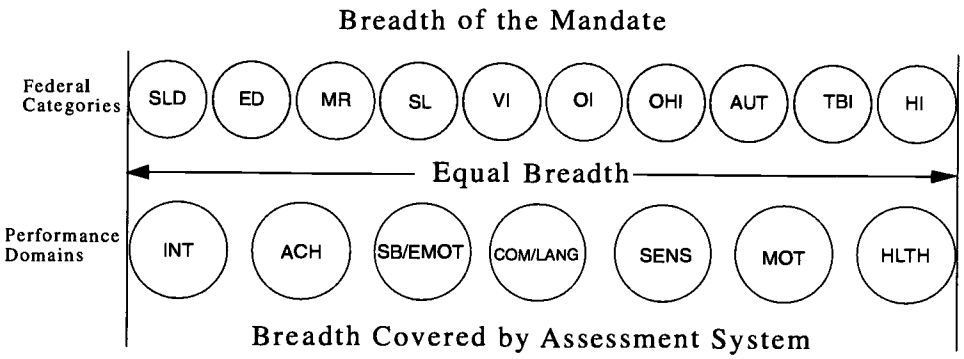
State 1 operationalizes eligibility criteria for each of the 10 disability categories and thus meets the mandate. State 2 operationalizes noncategorical eligibility criteria for ***some*** of the federal categories, in this case for social systems disabilities, and used categorical disability labels for medical model disabilities. State 2's procedures also meet the mandate. State 3 uses a noncategorical label for all IDEA eligible students within the state, and they too met the mandate. Figure 6 illustrates the logic underlying State 3's approach.

Figure 6. How the "Breadth of The Mandate is Assured in a Functional and Noncategorical System



Behavior Domains Key	Disability Labels Key
INT = Intelligence	SLD = Specific Learning Disability
ACH = Academic Achievement	ED = Emotional Disturbance
SB/EMOT = Social Behavior and Emotional Adjustment	MR = Mental Retardation
COM/LANG = Communication/Language	SL = Speech and Language Impairment
SENS = Sensory Status	VI = Visual Impairment
MOT = Motor Skills	OI = Orthopedic Impairment
HLTH = Health Status	OHI = Other Health Impairment
	AUT = Autism
	TBI = Traumatic Brain Injury
	HI = Hearing Impairment

In Figure 6, the breadth of the federal mandate is illustrated by the IDEA '97 disability categories. Since the range of disabilities in these categories is accounted in total by the student performance in the seven performance domains underlying them (see chapter 2), a rationale is built that defining disability based on severe performance deficits in these seven domains will account clearly for the range of disabling conditions enumerated in the law. Thus, State 3's procedures fully meet the mandate. The difference is that specific assessment targets are selected based on the ***behavior domains*** underlying the problem and that the "pattern matching" approaches that have been used in the past are not required. Instead, disability is defined directly in the manner consistent with Deno's (1995) definition of disability. That is, presence of a disability in one or more of the behavior domains refers to "conditions of the individual referring to the fact that their level of competence, performance, or ability to do something is consistently and significantly lower than their peers."

Summary

Problem solving assessment (PSA) can be used as a structure for noncategorical identification, assessment, entitlement determination and program planning for both medical model disabilities and social system disabilities. PSA requires that the best assessment technology available be used to determine disability and most importantly to determine educational need and programming. For medical model disabilities, problem solving assessment uses objective assessment to its maximum extent when determining disability. The effects of the disability on the individual's education is also rigorously attended to. For social system disabilities, problem solving assessment uses assessment technologies that both can be used to make inferences about the presence of a disability ***and*** can be used to inform educational programming. Problem-solving assessment identifies students with social system disabilities using ***performance-based inferences*** just as the traditional psychometric approach does. PSA, however, uses improved measurement technology (i.e., measurement procedures with documented relationship to effective educational interventions) throughout the eligibility determination process ***and*** the need determination process. The legislative framers of IDEA provide latitude and support for states to apply identification practices that met the federal mandate. Using the PSA process to provide comprehensive special education services is one of those legitimate alternatives.

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Appendix A: Professional Practices in Problem Solving

In response to requests from a large number of educators in Iowa, this document has been developed to clarify best professional practices in implementing educational problem solving systems. Educators and support services staff from seven area education agencies (AEAs) and the Department of Education collaborated in the creation of this document. It is meant to be used as a guide in the creation of comprehensive problem solving systems and as a system evaluation tool for examining problem solving implementation.

Overview and Rationale for Problem Solving

The problem solving approach is an orientation for addressing a wide variety of educational problems, a process involving a series of steps, and a specific set of professional practices. The problem-solving approach may be used by two or more people in any setting where there is a difficulty that needs to be resolved. A student assistance team can use problem solving to address a learner's chemical dependency. A curriculum committee can use problem solving when it considers the adoption of a new basal reading series. Problem-solving procedures may also be used to address the educational performance problems of individual learners. The purpose of this document is to describe a set of benchmarks that define best professional practices in the process of problem solving for individual learners.

A variety of specific problem-solving models are currently in use within the state of Iowa. Among these models are collaborative problem solving (Robinson, 1990), hypothesis generation and testing (Batsche, Knoff and Ulman, 1984), and the IDEAL* problem-solving approach (Bransford & Stein, 1984). This document is intended to describe important practices that are common among all problem-solving models. These benchmarks are not intended to prescribe a single, specific problem-solving model.

Educational problems vary in nature and intensity. Some problems are very mild and require few resources to resolve, while other problems are very severe and require a wide variety of resources. Problem-solving practices must be adapted to fit the nature of the problem. Simple and informal problem-solving procedures are often sufficient to address mild problems, but more significant problems often require more formal and systematic practices. The problem-solving process remains the same in terms of the sequence of steps used to arrive at solutions. However, the manner in which these steps are implemented varies from simple to complex, and from informal to formal. The problem-solving benchmarks in this document describe the practices to be used with more difficult and complex problems. Some AEAs have chosen to recognize these ideas by describing a series of problem solving levels. The procedures described in this document would correspond with problem solving at Levels III (Consultation with Extended Problem Solving Team) and IV (Due Process/IEP Consideration).

The use of a problem-solving process requires changes in both belief and practice. Ongoing training and feedback are imperative for meaningful change to occur.

The remainder of this document includes beliefs related to the problem-solving process, critical components of the process, and a reference list. Although this material is comprehensive in describing skills related to problem solving, all of the skills necessary for successful professional practice are not addressed in this document. Professional problem solving requires not only knowledge of the elements included herein, but skill in other areas such as collaboration, child development, and learning theory.

Belief Statements

The following series of belief statements are inherent within the problem solving procedures in this document:

- Problem solving is a collaborative activity that involves two or more people who share expertise and responsibilities.
- Problem solving should make use of all appropriate resources to help learners become educationally successful.
- The *primary* purpose of problem solving is to solve problems by designing effective individual interventions.
- Problems affecting student performance do not exist exclusively within the makeup of learners, but occur as the result of an interaction between learner characteristics and the educational setting**.

* IDEAL stands for Identify the behavior, Define the problem, Explore intervention options, Act on the plan, and Look at the results.

** As used within this document, *educational setting* is defined as including all locations that have educational relevance to the defined problem. These could include a work site for a learner involved in a work study program, a home for an infant involved in a home-based intervention program, or a school bus for a child with behavioral problems during transportation to school, etc.

- The effectiveness of a solution cannot be determined prior to its implementation. Therefore, solutions must be implemented, monitored, reviewed, and changed as necessary.
- Problem solving interventions must be sensitive to and appropriate for: diverse educational settings, learners of all ages, and problems of different severities.
- Problem solving procedures are best applied as part of a school wide effort.
- A problem is not defined as the difference between a learner's potential and achievement, but as the discrepancy between the demands of the educational setting and the learner's performance in the setting.

Benchmarks of Professional Problem-Solving

The procedures described in this section address critical components of the problem-solving process as applied to individual learners. These critical components include:

—parent involvement,
—problem statement,
—systematic data collection,
—problem analysis,
—goal,
—intervention plan development,
—intervention plan implementation,
—progress monitoring,
—decision making.

A definition of each critical component is provided in the body of this paper. Beneath each definition is a series of statements that describe the best practice benchmarks for implementing that component within the problem-solving process.

The benchmarks are also described by the Problem Solving Innovation Configuration in the next section. The Problem Solving Innovation Configuration delineates the variety of ways in which practitioners can implement each of the practices. More specific information is provided in that section.

Note: The sequence in which components are described is not intended to correspond exactly with the series of steps in a problem-solving process. The rationale for moving away from a step-by-step description of the process is that not all problem-solving models make use of the same sequence of steps. Also, some activities occur simultaneously during problem solving, rather than in a linear fashion. For example, the implementation of an intervention plan occurs at the same time as progress monitoring. Each of these activities is viewed as a critical component of problem solving and is described as such in this section.

Critical Component: *Parent Involvement*

Definition: Active parent participation is an integral aspect of the problem-solving process.

Benchmarks:

- Parents are invited to participate and are included in the problem-solving process.
- Parents are informed at all decision making points.
- Parent involvement and participation is documented.

Critical Component: *Problem Statement*

Definition: A problem statement is a behaviorally defined description of a problem within an educational setting*. It defines the degree of discrepancy between the demands of the educational setting and the learner's performance.

Benchmarks:

- The problem behavior is stated in specific terms (precisely defined).
- The problem behavior is stated in concrete, observable terms (described as actions that may be seen or heard).
- The problem behavior is stated in measurable terms (identified as occurrences that can be counted reliably).
- The relevant domains (learner, curriculum, instruction, educational setting) are examined through systematic data collection.
- The dimensions of the behavior (frequency, intensity, duration, latency, and accuracy) and the educational setting demands are defined.
- The degree of discrepancy between the demands of the educational setting and the learner's performance is determined.
- The problem statement focuses upon alterable variables (characteristics of the learner and/or the environment that can be changed).

*As used within this document, *educational setting* is defined as including all locations that have educational relevance to the defined problem. These could include a work site for a learner involved in a work study program, a home for an infant involved in a home-based intervention program, or a school bus for a child with behavioral problems during transportation to school, etc.

Critical Component: *Systematic Data Collection*

Definition: Systematic data collection is a process for collecting meaningful, relevant information about a problem. It requires the development of assessment questions, selection of data collection tool(s) appropriate to answer the question, and the use of these tools to collect data.

Benchmarks:

- The data-collection procedure is based on assessment questions which determine the nature of the data to be collected.
- The data-collection procedure is multidimensional. Data are collected from multiple settings (small group and large group activities, classroom, playground, etc.), using multiple sources of information (learner, teachers, and parents), with multiple methods of data collection (review, interview, observe and/or test), as appropriate to the specific nature of the problem.
- The data-collection procedure is relevant to the stated problem. Data are collected that are specific to the identified behavior(s) of concern.
- The data-collection procedures focus on alterable variables (characteristics of the learner and or educational setting that can be changed).
- The data-collection procedures allow for frequent and repeated measurement.
- The data-collection procedure is technically adequate. It is both reliable (repeatable) and valid (measures what is intended) in regard to the identified behavior(s) of concern.
- Data collection includes at a minimum: a direct measure of the behavior(s) of concern in the setting where it is problematic and measures of variables that may contribute to or maintain the problem behavior.
- The data that are collected provide appropriate quantitative and qualitative descriptions of the problem behavior(s) and of relevant demands in the setting.
- The data yield a quantitative discrepancy between the level of the problem behavior(s) and relevant educational setting demands.
- The data are used to form (plan and monitor) interventions.

Critical Component: *Problem Analysis*

Definition: Problem analysis is the complex process of examining all that is known about a problem for the purpose of identifying alterable variables related to the problem. This information is used to design interventions that have a high likelihood of success.

Benchmarks:

- Problem analysis is problem centered, rather than learner-centered.
- Inferences drawn during problem analysis are data-based.
- Problem analysis focuses only on information relevant to solving problems.
- Problem analysis focuses on characteristics of educational settings and learners that can be changed, since these are the ones that lead most directly to successful intervention.
- Problem analysis determines whether a problem is the result of a skill deficit or a performance problem (*can't do* versus *won't do*).
- Problem analysis involves two or more responsible parties *. The number of responsible parties involved is determined by the level of problem analysis being conducted and the decisions being made.

* The *responsible parties* involved in problem solving may include parents, general education teachers, special education teachers, administrators, support staff members, or anyone else who might provide assistance with planning and implementing a problem-solving intervention.

Critical Component: ***Goal***

Definition: A goal is a written statement of projected improvement or remediation of the problem.

Benchmarks:

- A stable and representative sample of the learner's current level of performance is collected, and a problem analysis is conducted, before the goal is written.
- The goal includes a (measurable, observable, alterable, and specific) behavior, timeline, conditions, and a criterion for acceptable performance.
- The criterion of acceptable performance is selected based on a comparison between the current level of learner performance and the demands of the educational setting.

Critical Component: ***Intervention Plan Development***

Definition: An intervention plan* describes the individualized course of action for addressing a specific problem. Effective intervention plans are based on systematic data collection and problem analysis.

Benchmarks:

- The intervention plan relates to the defined problem and the review of data.
- The intervention plan includes documentation of:
  —parental involvement,
  —a measurable goal,
  —a specific description of strategies, procedures, responsible parties, and review dates,
  —a progress monitoring plan,
  —a decision-making plan for summarizing and analyzing progress-monitoring data.
- The intervention strategies focus on modifying aspects of the educational setting to improve performance.
- The intervention strategies are selected based on the nature of the defined problem, parental input, and professional judgments about the potential effectiveness of strategies.

Critical Component: ***Intervention Plan Implementation***

Definition: Implementation involves applying the intervention plan in the way that it was designed.

Benchmarks:

- The intervention plan is implemented as written.
- Learner performance data are collected regularly and frequently (1-3 times per week), using systematic data analysis and decision making.
- Regular and frequent follow-up and professional support is provided with the evaluation of the intervention plan and the data.
- Modifications in the intervention plan are made on the basis of objective data.
- Modifications in the intervention plan are made with the agreement of responsible parties.

Critical Component: ***Progress Monitoring***

Definition: Progress monitoring involves the regular and frequent collection and analysis of learner-performance data for the purpose of evaluating the effectiveness of an intervention.

Benchmarks:

- The intervention plan includes progress monitoring and decision making.
- A behavior is operationally defined (e.g., measurable, observable, and specific).
- A measurement strategy is selected that is appropriate to the dimensions of the behavior.
- The learner's current level of performance is defined.
- A measurable goal is written that describes the behavior, conditions and criterion.
- A progress monitoring graph is developed.
- Learner performance data are collected and graphed on a regular and frequent basis (1-3 times per week).
- A systematic decision-making plan is used to analyze the learner's pattern of performance.

* An *intervention plan* is designed to address a single, specific problem. In the event that more than one problem is being addressed, a student may have more than one intervention plan.

- Modifications in the intervention plan are made, as frequently as necessary, based on progress monitoring data.

Critical Component: *Decision Making*

Definition: Decision making is the systematic procedure by which responsible parties summarize and analyze patterns of learner performance. The analysis assists in making decisions about the effectiveness of an intervention.

Benchmarks:

- There is documentation of parental involvement.
- There is a clearly stated decision-making plan that is developed prior to the implementation of the intervention plan.
- The decision-making plan is the basis for summarizing and evaluating the learner performance data.
- Decision making includes a plan for regular and frequent support for the implementor(s) with evaluation of data and the intervention plan.
- Decisions are made with data obtained through regular and frequent progress monitoring.
- The decision-making plan is implemented regularly to examine the effects of the intervention.
- The intervention is modified as necessary, based on the analysis of the learner's pattern of performance, and with the agreement of responsible parties.
- At the end of the goal period, the decision-making plan and learner-performance data are analyzed to determine the effectiveness of the intervention.

Appendix B: Problem Solving Innovation Configuration·

An innovation configuration is a staff development tool that allows the developers of an innovation (such as the problem-solving process) to describe the skills related to the innovation in concrete, observable, measurable terms. When innovations are first introduced, implementors do not always apply new skills in a truly effective or "ideal" fashion. Expertise and confidence develop over time, as implementors practice the skills and receive support and feedback. An innovation configuration describes "ideal" practice in operational terms, and also describes the variations in practice that may occur as implementors apply new skills.

The Problem Solving Innovation Configuration on the following pages describes "ideal" practice in the application of problem-solving skills as well as the range of variations that may occur. Each critical component of the problem-solving process is described in terms of essential subcomponents (listed in bold type on the left-hand side of each page), as well as the range of variations within each subcomponent. Variations on the left hand side of the bold line (usually designated as number 1) within each subcomponent are considered to be the ideal application of that specific skill. Variations to the left of the non-bold vertical line are considered to be acceptable variations in application of the subcomponents. Variations to the right of the non-bold vertical line (usually designated as number 3, 4, or 5) are considered to be unacceptable applications of a particular skill in that they may render the practice ineffective.

Example Innovation Configuration Subcomponent

Subcomponent Title

Parent Participation

(1) Parents are informed at all decision-making points, and are invited to participate by letter or phone; parents participate.	(2) Parents are informed at all decision-making points, and are invited to participate by letter or phone; parents choose not to participate	(3) Parents are informed at all decision-making points; partents are not invited to participate.	(4) Parents are not informed or invited to participate
Ideal Implementation of Critical Subcomponent *(Left of Bold Line)*	Acceptable Implementation of Critical Subcomponent. *(Left of Light Line)*		Less Acceptable Implementation of Critical Subcomponent *(Right of Light Line)*

Appendix B: Innovation Configurations

Critical Component: *Parent Involvement*

Parent Participation

(1) Parents are informed at all decision-making points, and are invited to participate by letter or phone; parents participate.	(2) Parents are informed at all decision-making points, and are invited to participate by letter or phone; parents choose not to participate.	(3) Parents are informed at all decision making points; parents are not invited to participate.	(4) Parents are not informed or invited to participate.

Documentation

(1) Documentation states how and when parents are informed (parent permission is obtained when necessary); parent involvement in implementing the intervention plan is documented.	(2) Documentation states how and when parents are informed (parent permission is obtained when necessary); there is no documentation of parent involvement in implementing the intervention plan.	(3) Documentation consists of only legally required components.	(4) Documentation is not present.

Critical Component: *Problem Statement*

Definition of Behavior

(1) The description of the problem behavior is specific, observable, alterable, and measurable.	(2) Problem behavior is alterable, but is stated in general terms.	(3) Problem behavior is specific, observable, and measurable, but not alterable.	(4) Problem behavior is stated in general terms and is not alterable.	(5) Problem behavior is not stated.

Dimension of Behavior

(1) The appropriate dimensions of the behavior (frequency, latency, duration, intensity, and/or accuracy) are identified, and those dimensions of the behavior are measured.	(2) The dimensions of the selected behavior are identified but not measured.	(3) The dimensions addressed are not appropriate for the selected behavior.	(4) Dimensions of the selected behavior are not addressed.

Educational Setting Demands

(1) The educational setting demands have been identified, and those dimensions have been measured.	(2) The educational setting demands are identified but not measured.	(3) The educational setting demands that have been identified are not appropriate for the selected behavior.	(4) The demands of the educational setting have not been addressed.

Magnitude of Discrepancy

(1) The magnitude of the discrepancy is quantified, based on a comparison between learner performance and local educational setting demands.	(2) The magnitude of the discrepancy is quantified, based on a comparison between learner performance and standards outside the local educational setting.	(3) The magnitude of the discrepancy is quantified, but is based on an opinion.	(4) The magnitude of the discrepancy is described qualitatively.	(5) The magnitude of the discrepancy is not described.

Critical Component: *Systematic Data Collection*

Assessment Questions

(1) Assessment questions: • focus data collection activities on relevant, alterable factors • lead to interventions • are linked to the behavior of concern.	(2) Assessment questions: • are either global or vague • do not sufficiently focus data collection activities on relevant, alterable factors • lead to interventions.	(3) Assessment questions: • are generated through a standard battery approach • are not linked to the behavior of concern • are not relevant, alterable, nor related to effective interventions.	(4) Assessment questions: • focus data collection activities on relevant but inalterable factors.	(5) Assessment questions are not written.

Multi-Dimensional

(1) A variety of assessment procedures (record review, interview, observation and or test) is used to collect data from a variety of relevant sources and settings. Procedures are selected in a flexible manner based on the nature of the problem.	(2) A standard group of assessment procedures is used to collect data from a variety of relevant sources and settings.	(3) A standard group of assessment procedures is used to collect data from a variety of sources and settings without regard to relevance.	(4) A standard group of assessment procedures is used to collect information from a single source and setting without regard to relevance.	(5) A single source of data is used.

Characteristics of Data Collection Procedures

(1) Data collection procedures: • are technically adequate • are direct measures • can be collected in a frequent and repeated manner.	(2) Data collection procedures: • are technically adequate measures • do not lend themselves to frequent and repeated measurement.	(3) Data collection procedures: • are technically inadequate • are direct measures • can be collected in a frequent and repeated manner.	(4) Data collection procedures: • are technically inadequate • are indirect measures • cannot be collected in a frequent and repeated manner.

Critical Component: ***Systematic Data Collection***
(Continued)

Defines a Discrepancy

(1)	(2)	(3)	(4)	(5)
Data collection provides appropriate quantitative and qualitative descriptions of a target behavior and of relevant setting expectations, yielding a quantitative discrepancy between the two.	Data collection provides a precise quantitative description of a target behavior and a general qualitative description of relevant setting expectations, yielding a qualitative discrepancy between the two.	Data collection provides a general, qualitative description of both the behavior and the relevant setting expectations, yielding a qualitative discrepancy between the two.	Data collection provides a description of the learner's behavior only, without regard to the expectations of the setting. No discrepancy is described.	Data are not collected on either learner behavior or the expectations of the setting.

Leads to an Intervention

(1)	(2)	(3)	(4)	(5)
The outcomes of data collection are specific and permit the design of individualized interventions that directly address the behavior of concern.	The outcomes of data collection are specific and generally address the behavior of concern, and can be matched to a standard, relevant intervention routinely provided to all learners in the setting.	The outcomes of data collection provide general information that does not lead to an effective intervention.	The outcomes of data collection are not tied to the behavior of concern, and are matched to a standard, irrelevant intervention that is routinely provided to all learners in the setting.	Data are not collected.

Critical Component: *Problem Analysis*

Data Based

(1) Specific inferences drawn during problem analysis are appropriate, based on professional standards and relevant data.	(2) General inferences are drawn during problem analysis that are appropriate, based on professional standards and relevant data.	(3) Inferences drawn during problem analysis are based on subjective opinion.	(4) Data are collected, but no analysis occurs.	(5) General or specific inferences are drawn during problem analysis that are not based on data.

Focus of Analysis

(1) The analysis focuses on relevant, alterable variables, and uses problem-centered data.	(2) The analysis focuses on relevant, alterable characteristics of the learner.	(3) The analysis focuses on irrelevant but alterable characteristics of the learner.	(4) The analysis focuses on irrelevant and inalterable characteristics of the learner.	(5) Data are not analyzed.

Collaborative Analysis

(1) Problem analysis involves two or more persons who share responsibility for decision making.	(2) Problem analysis involves two or more persons, but decision making responsibilities are held by one person.	(3) Problem analysis involves only one person who functions in an expert role and has all decision making responsibilities.	(4) Problem analysis does not occur.

Critical Component: *Goal*

A Stable and Representative Sample (Baseline Data)

(1) A stable and representative sample of the learner's current level of performance is collected, and a problem analysis is conducted, before the goal is written.	(2) A single sample of the learner's current level of performance is collected, and a problem analysis is conducted, before the goal is written.	(3) A stable and representative sample of the learner's current level of performance is collected, but problem analysis is conducted after the goal is written.	(4) A stable and representative sample of the learner's current level of performance is collected, but problem analysis is not conducted before the goal is written.	(5) A single sample of the learner's current level of performance is collected, and there is no problem analysis.

Components of a Goal

(1) A goal contains a specific behavior, conditions, and criterion.	(2) A goal contains a specific behavior and criterion.	(3) A goal contains a specific behavior.	(4) A goal is written, but does not contain a specific behavior, conditions, or criterion.	(5) A goal is not stated.

Standard for Criterion Selection

(1) The goal performance level is selected based on objective measures of current level of student performance and the appropriate educational setting demands.	(2) The goal performance level is selected based on a subjective analysis of the available data.	(3) No goal performance level is established.

Critical Component: *Intervention Plan Development*

Internal Consistency

(1) The intervention plan relates to the defined problem and the data analysis.	(2) The intervention plan relates only to the defined problem.	(3) The intervention plan relates to an undefined problem, but data were collected.	(4) The intervention plan is not related to a defined problem, and data have not been collected.	(5) An intervention plan is not written.

Intervention Plan Components

(1) The intervention plan includes documentation of: parental involvement, definition of behavior, measurable goal, strategies, procedures, responsible parties, review dates, progress monitoring plan, and decision making plan.	(2) The intervention plan includes, at a minimum, documentation of: parental involvement, definition of behavior, measurable goal, strategies, procedures, responsible parties, and progress monitoring.	(3) The intervention plan includes, at a minimum, documentation of: parental involvement, definition of behavior, measurable goal, description of strategies, procedures, and responsible parties.	(4) The intervention plan includes, at a minimum, documentation of: general goal, description of strategies, and responsible parties.	(5) The intervention is a list of strategies.

Intervention Strategies

(1) The intervention strategies: • modify the educational setting to improve performance • relate to the defined problem • are selected with professional judgment.	(2) The intervention strategies: • modify the educational setting to improve performance • relate to the defined problem • are selected from perceptions of success and feasibility.	(3) The intervention strategies: • modify the educational setting • relate to the defined problem • are selected from perceptions of feasibility.	(4) The intervention strategies: • relate to general problems • are a brainstormed list.	(5) The intervention strategies: • are unrelated to the problem • do not demonstrate sound professional judgment.

Critical Component: ***Intervention Plan Implementation***

Implementation

(1) The intervention plan is implemented as written, and modified when necessary based on systematic data analysis, and with the agreement of responsible parties.	(2) The intervention plan is implemented as written and modified when necessary by the agreement of responsible parties.	(3) The intervention plan is implemented, is not successful, and is not modified.	(4) The intervention plan is not implemented as designed.	(5) The intervention plan is not implemented.

Monitoring Schedule

(1) Data are collected and graphed 1-3 times per week, with systematic data analysis and decision making; the intervention plan is modified as indicated by data and decision making rules.	(2) Data are collected and graphed 2-4 times per month, with systematic data analysis and decision making; the intervention plan is modified as indicated by data and decision making rules.	(3) Data are collected and graphed 2-4 times per month, with systematic data analysis and decision making; necessary changes in the intervention plan are not implemented.	(4) Data are collected and graphed 2-4 times per month; decision making is based on informal data analysis or subjective perceptions only.	(5) Little or no data are collected.

On-Going Support

(1) Scheduled and frequent support is provided with the evaluation of the intervention plan and data.	(2) Scheduled and frequent support is provided with the evaluation of the intervention plan.	(3) Scheduled support is provided on a limited basis.	(4) Unscheduled support is provided on a limited basis.	(5) No support is provided.

Critical Component: *Progress Monitoring*

Definition of the Behavior

(1) The description of the problem behavior is specific, observable, alterable, and measurable.	(2) The description of the problem behavior is stated in general terms but is alterable.	(3) The description of the problem behavior is specific, observable, and measurable, but not alterable.	(4) The description of the problem behavior is stated in general terms and is not alterable.	(5) A description of the problem behavior is not stated.

Measurement Strategy

(1) The dimension for the behavior is identified and the appropriate measurement strategy to match the dimension is selected.	(2) The dimension for the behavior is identified and an inappropriate measurement strategy to match the dimension is selected.	(3) The dimension for the behavior is not identified and an inappropriate measurement strategy to match the dimension is selected.	(4) The dimension for the behavior is not identified and there is no measurement strategy.

Current Level of Performance

(1) A stable and representative sample is collected; a discrepancy is quantified by comparing learner performance and local educational setting demands; the discrepancy is significant and addressed.	(2) A stable and representative sample is collected; a discrepancy is quantified by comparing learner performance and local educational setting demands; the discrepancy is not significant and the problem is redefined.	(3) A stable and representative sample is collected; no comparison is made between learner performance and local educational setting demands.	(4) A sample is collected; no comparison is made between learner performance and local educational setting demands.	(5) There is no sampling of the behavior.

Goal

(1) A measurable goal is established including conditions, criterion, and timelines. The goal is written and displayed on a graph.	(2) A measurable goal is established including conditions, criterion, and timelines. The goal is written and not displayed on a graph.	(3) A measurable goal is established including conditions, criterion, and timelines. The goal is neither written nor displayed on a graph.	(4) A non measurable goal or an incomplete goal is established	(5) A goal is not established.

Critical Component: ***Progress Monitoring***
Continued

Monitoring

(1) Data are collected and graphed on a regular and frequent basis (1-3 times per week).	(2) Data are collected and graphed on a regular basis (2-4 times per month).	(3) Data are collected regularly but not graphed (2-4 times per month).	(4) There is no scheduled or regular data collection; data are collected irregularly and are graphed.	(5) Data are not collected.

Decision-Making Plan

(1) A decision-making plan is used to make decisions on a scheduled basis; modifications are made to the intervention when necessary.	(2) A decision-making plan is established but used inconsistently; modifications are made to the intervention when necessary.	(3) A decision-making plan is established and used for decision making but necessary modifications to intervention plans are not made.	(4) A decision-making plan is established, but not used.	(5) No decision-making plan is established.

Critical Component: ***Decision Making***

Decision Making Plan

(1) The decision making plan: • is developed prior to intervention implementation • is used for summarizing and evaluating student performance data • is implemented on a scheduled basis.	(2) The decision making plan: • is not developed prior to intervention implementation • is used for summarizing and evaluating student performance data • is implemented on a scheduled basis.	(3) The decision making plan: • is developed prior to intervention implementation • is used for summarizing and evaluating student performance data • is not implemented on a scheduled basis.	(4) The decision making plan: • is developed prior to intervention implementation • is not implemented on a scheduled basis.	(5) A decision-making plan is not developed.

On-going Support

(1) Scheduled and frequent support is provided with the evaluation of the intervention plan.	(2) Scheduled support is provided on a limited basis.	(3) Unscheduled support is provided on a limited basis.	(4) Support is not provided.

Modifications

1) Appropriate data-based modifications are made when necessary, and with the agreement of responsible parties.	(2) Appropriate data-based modifications are made when necessary, by one person	(3) Modifications are made without data, but with the agreement of responsible parties.	(4) Modifications are made without data, and by only one person.	(5) Modifications are not made.

Appendix C Letter From OSEP Regarding Purpose Of Labeling

211:440
Richards, Letter to (Assessment)

Office of Special Education Programs, Patti C. Richards, 4307 Dahill Place, Alexandria, VA 22312.

Digest of Inquiry
What is the purpose of assigning categorical labels to children receiving special education under Pub. L. 94-142?

Digest of Response
Public agencies may "label" children in terms of their category of disability for the following purposes:

(1) evaluating a child's need for receiving special education and related services,
(2) determining an appropriate educational program or placement for a child; however, any program or placement determination based on a child's "label" rather than his individual needs will be presumed to violate Federal law,
(3) reporting child count data, and
(4) disclosing information about children receiving special education and related services

Text of Inquiry
I would like to ask the purpose of assigning a handicapping condition label (i.e., seriously emotionally disturbed, learning disabled, etc.) to children receiving education under Public Law 94-142. Is the assignment of such labels mandated by the law? What is the intent of this labeling?

Thank you for your assistance.

Text of Response
Thank you for your recent letter requesting clarification of whether the practice of categorically "labeling" children with disabilities is consistent with the Part B requirements of the Education of the Handicapped Act (EHA-B), P.L. 94-142. In particular, you ask whether the assignment of categorical labels (e.g., seriously emotionally disturbed, learning disabled, etc.) is mandated by Federal law; and if so, for what purpose and with what intent?

Your letter raises concerns about a matter that touches justifiable parental sensitivities and that exposes lingering confusion throughout the special education community. Let us address your concerns by identifying the possible purposes to which the practice of "labeling" may be put and then specify the legal consequence of that action. We can identify the following purposes that public agencies might have for "labeling" children in terms of their category of disability: 1) evaluating a child's need for receiving special education and related services, 2) determining an appropriate educational program for a child needing special education and related services, 3) determining an appropriate placement for implementing a child's special education program, 4) reporting child count data, and 5) disclosing appropriate information about children receiving special education and related services.

1. Evaluation: Federal regulations governing the education of children with disabilities define "handicapped children" as those children evaluated in accordance with Regs. 300.530-300.534 as having one of eleven designated disabilities, and who because of those impairments need special education and related services. See 34 C.F.R. 300.5. The evaluation procedures adopted by public agencies must ensure that each child who is identified as needing special education services be assessed in all areas related to the suspected disability and that the evaluation be conducted by persons knowledgeable in the area of suspected disability. See Regs. 300.532(e) and (f).It is the

view of this office that any reference to a child's suspected disability in these regulations is for the purpose of determining that child's eligibility to receive special education and related services and not for the purpose of categorically labeling the universal needs of children with similar disabilities. The law recognizes the critical existential distinction between having a disability and being that disability; the law acknowledges the former, while discrediting the latter. Thus, to the extent a public agency publicly labels children as "being" a particular disability, that agency does those children a disservice by unduly stigmatizing them and may be acting in a manner contrary to the policy values sanctioned by EHA-B.

2. Appropriate Educational Services: Each State must have in effect an enforceable policy that ensures all children with disabilities have the right to a free appropriate public education (FAPE). See 34 C.F.R. 300.121. The regulations define FAPE as meaning special education and related services which are provided in conformity with an individualized education program (IEP) that meets the requirements of Regs. 300.340-300.349. See 34 C.F.R. 300.4. The central and unifying principle expressed in Federal law ensuring the rights of children with disabilities to free appropriate educational services is that each child's educational needs be individually evaluated and that an educational plan be individually developed and implemented to meet that child's unique needs.

Whatever other purpose might be intended by agencies that publicly label children according to the category of their disability, the obvious utility of any labeling system is to identify characteristics universally shared with other children, not to identify characteristics unique to each individual child. The unavoidable consequence of such a labeling practice is to identify and plan to meet each child's educational needs on the basis of what that child has in common with other children similarly identified rather than on the basis of that child's individualized needs. Thus, it is the view of this office that any labeling practice that categorizes children according to their disability in order to facilitate the individual determination of any child's appropriate educational needs or services will be presumed to violate the protections accorded under Federal and State laws.

3. Placement: Federal regulations provide that each child's educational placement must be based on his or her IEP (see 34 C.F.R. 300.552(a)(2)) and that any removal of that child from a regular educational environment to a special class or separate facility must be based solely on the determination that educational benefit cannot be achieved satisfactorily in regular classes with the appropriate use of supplementary aids and services, not based simply on that child's category of disability or for administrative convenience (see 34 C.F.R. 300.550(b)(2)).

Fortunately, the law is not designed to cater to administrative convenience, but is intended to ensure each child's right to be educated with nonhandicapped peers, to the maximum extent appropriate. "Appropriateness" pertains to the educational needs of students, individually determined, not to the administrative needs of public agencies. The practice of labeling children according to their category of disability may have as its intent, and more likely its effect, the removal of those children to segregated educational environments without appropriate consideration of whether each child could achieve satisfactory educational benefits by being educated with nonhandicapped peers, with the assistance of supplemental aids and services. During the past two years, this office has taken every opportunity to announce to the public, and to public agencies responsible for educating children with disabilities, that the categorical removal of children from the regular school environment is forbidden by Federal law. This office will continue to monitor States so that they faithfully meet their responsibility to ensure that each child is educated in the least restrictive environment. Thus, this office is clearly of the view that any public agency that justifies the educational placement of any child, either expressly or in practice, on the basis of some category of disability (i.e., "label") does so in direct contravention of Federal law and policy.

4. Reporting: For purposes of long-term planning and congressional oversight, State agencies are responsible for collecting aggregate child count data and annually reporting the number of children who are handicapped within each specified "disability category" to this office. See 34 C.F.R. 300.571(a)(2). The need to report this information is

independent from, and in no way necessarily impacts upon, how a public agency determines what a child's individual educational needs and services are or what educational placement is appropriate for implementing those services. While each child must be "labeled" for purposes of satisfying this requirement, the child's individual "label" need never be disclosed or reported; only aggregate statistics are reported.

5. Disclosure: As indicated above, a public agency may have legitimate need for labeling a child's suspected or assessed disability and for sharing that information with officials of agencies responsible for implementing the requirements of EHA-B. Federal regulations, however, do provide that in disclosing record information public agencies must protect the confidentiality of a student's personally identifiable information (see 34 C.F.R. 300.572(a)) and that parental consent must be obtained before personally identifiable information is used for any other purpose other than meeting the requirements of EHA-B (see 34 C.F.R. 300.571(a)(2)). Federal regulations define "personally identifiable" information as including the student's name or personal characteristic which would make the student's identity easily traceable. See 34 C.F.R. 99.3. Whether disclosure of a student's suspected or assessed disability, without disclosure of that student's name, would make the student's identity easily traceable cannot be determined as a matter of policy and would depend upon the unique circumstances in which the disclosure was proposed or made.

In sum, whether the practice of "labeling" children by their category of disability is permissible under Federal law is a complex question of fact and law. The quintessential value upon which special education policy and practice must be premised is individualized determination of need and service. To the extent that a public agency's approach incorporates this value, its policies and procedures are bound to comply with Federal law.

We hope we have been of assistance. Should you wish further clarification, please do not hesitate to contact this office or call Dr. Paul Chassy at 202-732-1079.

G. Thomas Bellamy, Ph.D.

Director
Office of Special Education Programs

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