



The Changing Conception of Mental Retardation: Implications for the Field

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Abstract: The 1992 American Association on Mental Retardation's (AAMR) definition and classification of mental retardation is different from the previous classification system in that: (a) a single diagnostic code of mental retardation is used if the person meets the three criteria of age of onset (18 or under), significantly subaverage abilities in intellectual functioning, and related limitations in two or more adaptive skills areas; (b) the person's strengths and weaknesses are described in reference to four dimensions: intellectual functioning and adaptive skills; psychological and emotional well-being; health, physical well-being, and etiology; and life activity environments; and (c) a profile of needed supports is developed across the four dimensions. In this article we discussed six major implications of the 1992 System for the field of mental retardation.

The concept of *mental retardation* and its definition have undergone numerous changes in terminology, IQ cut-off levels, and the diagnostic role of adaptive behavior over the last 4 decades (Heber, 1959, 1961; Grossman, 1973, 1977, 1983; Reschly, 1992). Each change has reflected the field's continuing attempt to develop a clearer understanding of the condition of mental retardation and to implement a more precise and applicable terminology, classification, and habilitation-oriented system. Our purpose in this article is to summarize current thinking about the concept of mental retardation as referenced in *Mental Retardation: Definition, Classification, and Systems of Supports* (Luckasson et al., 1992) published by the American Association on Mental Retardation (AAMR). The article is divided into three sections that summarize the changing conception of mental retardation; the 1992 AAMR Definition, Classification, and Systems of Supports ("The 1992 System"); and six implications for the field.

Changing Conception of Mental Retardation

Since 1983, when the last terminology and

classification manual was published (Grossman, 1983), there has been a significant paradigm shift within the field of mental retardation. An essential element within that shift relates to the conception of mental retardation not as an absolute trait expressed solely by the person, but as an expression of the functional impact of the interaction between the person with limited intellectual and adaptive skills and that person's environment (Baumeister, 1987; Bruininks, Thurlow, & Gilman, 1987; Edgerton, 1988; Greenspan & Granfield, 1992; Hawkins & Cooper, 1990; Institute of Medicine, 1991; Landesman & Vietze, 1987; McFadden & Burke, 1991; Scheerenberger, 1987). This emerging conceptualization of mental retardation necessitates two significant changes in one's thinking. First, exclusively person-referenced categories based on only one aspect of the person (e.g., level of severity of mental retardation) are not sufficiently descriptive or predictive to fully characterize individuals with mental retardation. Second, the new emphasis on actual functioning requires greater clarity in describing those adaptive skills and limitations that influence everyday living, thus resulting in

the need to identify the specific adaptive skill areas considered critical for coping with one's environment.

The paradigm shift has also influenced service delivery patterns, placing the focus of best practices on the strengths and capabilities of the person, normalized and typical environments, integrated services with supports, and the empowerment of individuals served (Bradley & Knoll, 1990; Schalock & Kiernan, 1990; Smull & Donnelly, 1993; Snell, 1993). These trends have coalesced into a fundamental redefinition of services that reflect person-centered planning and a functional support model within the community (Schwartz, 1992). Thus, the new conception of mental retardation also relates directly to the pattern and intensity of the individual's needed supports.

This paradigm shift focuses attention on the three key elements of the current conception of mental retardation: capabilities, environments, and functioning. These elements are shown diagrammatically in Figure 1, with functioning as the base of the triangle to emphasize that the 1992 System is primarily a functional model. Capabilities are shown on the left side of the triangle to indicate that functioning in mental retardation is specifically related to limitations in intelligence and adaptive skills. The right side of the triangle represents the environments in which individuals with mental retardation live, learn, play, work, socialize, and interact. The model also shows that supports

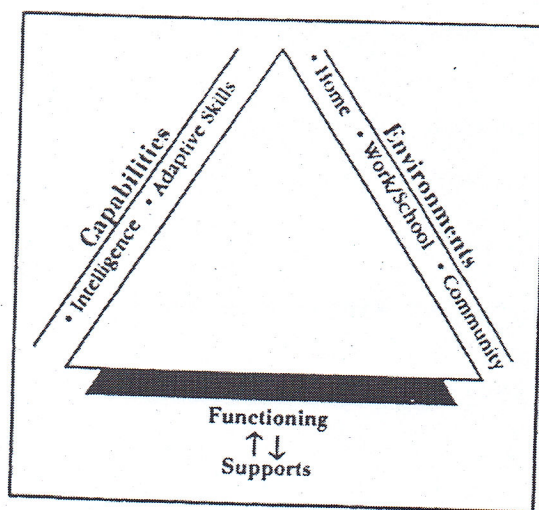


Figure 1. General structure of the definition of mental retardation. Note. From *Mental Retardation: Definition, Classification, and Systems of Supports* (p. 10) by Luckasson et al., 1992, Washington, DC: American Association on Mental Retardation (AAMR). Copyright 1992 by AAMR. Reprinted by permission.

reflect how the person functions and that the presence or absence of supports can influence functioning reciprocally. The equilateral nature of the triangle indicates that a description of all three aspects is necessary for a full understanding of the concept of mental retardation.

Current thinking about the disabling process as reflected by the Institute of Medicine (1991) defines *functional limitation* as the effect of specific impairments on the performance of the person. One's disability is the expression of such a limitation in a social context and reflects the interaction between limitations in intelligence and adaptive skills and the demands of one's environment. This functional approach to disability is also consistent with recent federal legislation including the Rehabilitation Act Amendments of 1992 (P.L. 102-569), Americans With Disabilities Act (P.L. 101-336), and Individuals With Disabilities Education Act (P.L. 101-476).

The 1992 AAMR Definition, Classification, and Systems of Supports

In 1992, AAMR adopted a new definition and classification system based on the changing conception of mental retardation just described (Luckasson et al., 1992). In the 1992 System, *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. (p. 5)

The definition is predicated on four assumptions essential to its application:

1. Valid assessment considers cultural and linguistic diversity as well as differences in communication and behavioral factors;
2. The existence of limitations in adaptive skills occurs within the context of community environments typical of the individual's age peers and is indexed to the person's individualized needs for support;
3. Specific adaptive limitations often coexist with strengths in other adaptive skills or other personal capabilities; and
4. With appropriate supports over a sustained period, the life functioning of the person with mental retardation will generally improve. (Luckasson et al., 1992, p. 5)

Any system by which a person is diagnosed as having mental retardation, and classified according to some criterion, consists of a series of formalized rules specifying the characteristics

that a person must have in order to be so diagnosed and classified. Over the years, these rules have changed in response to consumer, professional, political, and social forces. The 1992 System involves a three-step process that includes the diagnosis, description of individual strengths and weaknesses, and identification of needed supports. These three steps are as follows:

Step 1. Diagnosis of Mental Retardation (determines eligibility for supports)

Mental retardation is diagnosed if:

1. The individual's intellectual functioning is approximately 70 to 75 or below.
2. There are significant related limitations in two or more adaptive skill areas.
3. The age of onset is 18 or below.

Step 2. Classification and Description (Identifies strengths and weaknesses and the need for supports)

1. Describe the individual's strengths and weaknesses in reference to psychological/emotional considerations.
2. Describe the individual's overall physical health and indicate the condition's etiology.
3. Describe the individual's current environmental placement and the optimal environment that would facilitate his/her continued growth and development.

Step 3. Profile and Intensities of Needed Supports (identifies needed supports)

Identify the kind and intensities of needed supports for each of the four dimensions.

1. Dimension I: Intellectual Functioning and Adaptive Skills
2. Dimension II: Psychological/Emotional Considerations
3. Dimension III: Physical/Health/Etiology Considerations
4. Dimension IV: Environmental Considerations

The approach just outlined is different from the previous AAMR classification system (Grossman, 1983) in that first, a single diagnostic code of mental retardation is used if the person meets the three criteria of age of onset, significantly subaverage ability in intellectual functioning, and related limitations in two or more adaptive skill areas; second, a multi-dimensional approach is used to describe the person's strengths and weaknesses; and third, a profile of needed supports is developed across the four dimensions.

Implications for the Field

Implementing the 1992 System's three-step process outlined above has a number of implications for the field of mental retardation. Six implications are discussed in this section: the purpose of diagnosis, the basis of classification, the reliance on clinical judgment, the provi-

sion of education and habilitation services, the focus on prevention, and the direction of research. In discussing these implications, we address a number of concerns about the 1992 System raised in recent critiques, including its impact on the diagnostic process (Greenspan, 1994; Jacobsen, 1994; Jacobsen & Mulick, 1992; MacMillan, Gresham, & Siperstein, 1993), prevalence rates (Greenspan, 1994; MacMillan et al., 1993), classification based on the person's needed level of supports rather than severity level (Borthwick-Duffy, 1994; Greenspan, 1994; Macmillan et al., 1993), and research (Borthwick-Duffy, 1994; Greenspan, 1994). Additional responses to many of these concerns can be found in Reiss (in press).

Diagnosis for Intervention Planning

The 1992 System envisions that intervention planning is a primary purpose of diagnosis. The use of diagnostic assessment data for intervention planning should lead to desired outcomes for individuals with mental retardation, including the provision or procurement of essential services that result in the person's increased independence, productivity, and community integration (MacMann & Barnett, 1993; Messick, 1989; Schalock & Kiernan, 1990). This use also moves the diagnostic process away from the labeling of individuals (e.g., "a person with severe retardation") to the description of the person and his or her needed supports (e.g., "a person with mental retardation with extensive support needs in the areas of communication and limited support needs in the area of community use").

Three important issues are inherent within this expanded use of diagnostic information: reliability of diagnosis, eligibility for services, and prevalence rates. The issue of diagnostic reliability is by no means new because a diagnosis of mental retardation is influenced by a number of factors, such as alternative measures of adaptive behavior (Ronka & Barnett, 1986), specific intelligence tests used (Bracken, 1988; Spitz, 1986), categorizing IQs into a range (such as above or below average or mild, moderate, severe, profound: Cohen, 1983), and whether the diagnosis is made under a relatively high degree of experimentally controlled field trials or actual clinical practice (MacMann & Barnett, 1993). The issue of reliability is clouded further by the current discussion regarding what measure of interrater reliability (e.g., coefficient of association or coefficient of agreement: Stine, 1989) is most appropriate and

whether reliability determinations should be approached from an ecological or psychometric perspective (MacMann & Barnett, 1993).

The 1992 System adds another dimension to this issue: the reliability of decisions (referred to as "decision reliability" by Barnett, 1988) regarding the functional impact of the individual's assessed intellectual and adaptive limitations and needed support levels. Although standardized measures of intellectual functioning are available, the field of mental retardation is still lacking adequate standardized measures of adaptive behavior and support needs. Despite advances in assessing adaptive behavior (Al-Ansari, 1993; Bruininks, Hill, Weatherman, & Woodcock, 1986; Kamphaus, 1987; McGrew & Bruininks, 1989; McGrew, Bruininks, Thurlow, & Lewis, 1992; Maurice, Morin, & Tasse, 1993; Morin, 1993; Nihira, Leland, & Lambert, 1993; Ronka & Barnett, 1986; Smith & Polloway, 1978), the 1992 System underscores the need to develop more objective decision rules along with reliable and valid measures of adaptive behavior and needed supports (MacMillan et al., 1993).

The second issue involves eligibility for services. Disability advocates and policy makers have recently stressed that eligibility should be based more on functional criteria involving demonstrated need for assistance or support in major life activities rather than solely on formal, traditional test performance. For example, the Social Security Administration defines *mental retardation* as "mental incapacity evidenced by dependence upon others for personal needs" (Part 404, Subpt. P., App. 1, p. 381). The SSI eligibility for children requires a level of severity to be met by "mental incapacity evidenced by dependence upon others for personal needs (grossly in excess of age-appropriate dependence) and inability to follow directions such that the use of standardized measures of intellectual functioning is precluded" (20 CFR, part 404, Appendix 1 of Subpart P, p. 113). Similarly, the eligibility criteria for personal assistance services require that eligible individuals have "a permanent or temporary physical, sensory, cognitive, or mental impairment" or "an impairment which substantially limits one or more major life activities" (p. 2 of the CCD Personal Assistance Services Document).

In the 1992 System, the upper boundary of the IQ remains flexible in the tradition of the previous AAMR systems. As Grossman (1983) noted:

Significantly subaverage is defined as IQ of 70 or below on standardized measures of intelligence. This upper

limit is intended as a guideline; it could be extended upward through 75 or more, depending on the reliability of the intelligence test used. This particularly applies in schools and similar settings if behavior is impaired and clinically determined to be due to deficits in reasoning and judgment. (p. 11)

The IQ range of 70-75 is also consistent with the fact that it is important that the statistical variance in all intelligence tests be recognized as a basic limitation in measurement, which increases the need for clinical judgment by a qualified psychological examiner. As discussed further by Luckasson et al. (1992), the citation of a range of scores to affirm the IQ ceiling does not imply that a significantly larger number of individuals can or should be identified as having mental retardation and thus eligible for services, but rather reinforces the fact that the consideration of adaptive skills should take precedence over rigid adherence to IQs in such determination at these relatively higher levels of intellectual functioning.

The third diagnostic issue relates to prevalence rates. With the increased emphasis on a functional approach to diagnosis, one might logically ask about the effect of the 1992 System on prevalence rates (estimated from 1 to 3%: McLaren & Bryson, 1987; Mercer, 1973; Tarjan, Wright, Eyman, & Keernan, 1973; Zigler & Hodapp, 1986). A number of factors influence the prevalence estimates of mental retardation, including the intensity of detection efforts, population age (the diagnosis of mental retardation increases with age, peaking during late school years), availability of standardized intelligence and adaptive behavior instruments, and the reliability of diagnosis (McLaren & Bryson, 1987; Yu & Atkinson, 1993; Zigler & Hodapp, 1986). In addition, epidemiological studies that employ the single IQ-based criterion rather than the dual components criterion of IQ and deficits in adaptive skills tend to yield higher prevalence estimates of mental retardation (McLaren & Bryson, 1987; Sonnander, Emanuelson, & Kebbon, 1993).

The movement towards a functional approach to diagnosis will potentially affect these prevalence rates, but not necessarily upward. For example, there have been a number of recent studies determining the impact of using a functional definition of developmental disabilities based on the dual component criterion of IQ and deficits in adaptive skills. Across a number of studies (e.g., Gollay, 1981; Schalock & Kieth, 1988; Smull & Sachs, 1983; Webb, 1987), estimated prevalence rates average 1.26%. Similarly, the most recent figures from

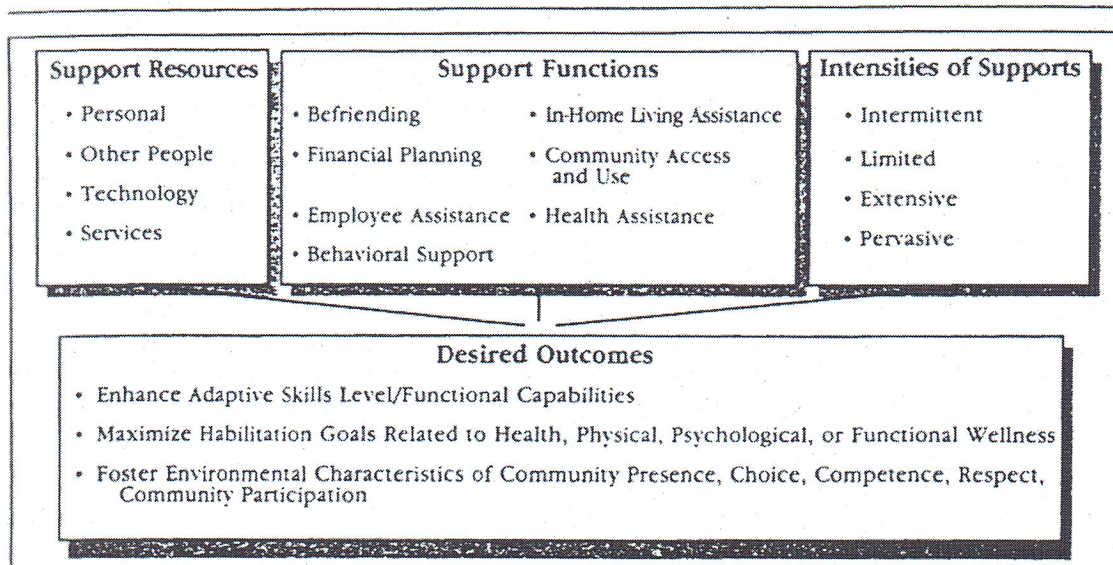


Figure 2. Supports outcome model. Note. From *Mental Retardation: Definition, Classification, and Systems of Supports* (p. 102) by Luckasson et al., 1992, Washington, DC: American Association on Mental Retardation (AAMR). Copyright 1992 by AAMR. Reprinted by permission.

the U.S. Department of Education (1992) reflect a decrease in prevalence (for ages 6 through 17) of over 38.9% since the passage of P.L. 94-142, with the current prevalence being 1.15% of the school population.

Classification Based on Needed Supports

Evaluating the profile and intensities of the

person's needed supports is an integral part of the 1992 System. There are currently a number of ways to conceptualize the source of supports, along with their functions, intensities, and desired outcomes. The model proposed in the 1992 System is shown in Figure 2. The four components of the model are support resources (individual, other people, technology, and services), support functions (Table 1), intensities of

Table 1
Support Functions

Supports	Description
1. Teaching	Advocating, instructing, adapting curriculum, collecting data, supervising, communicating, and providing feedback.
2. Befriending	Socializing, enjoying, sharing and confiding, accompanying.
3. Financial planning	Advocating for benefits and coverage of services; adjusting work benefits and SSI-Medicaid; helping with money management, check cashing, and budgeting; protection and legal assistance.
4. Employee assistance	Provision of counseling, crisis intervention and assistance, assisting in job accommodation and redesign, enhancing job performance, supervisory training, and procurement of assistive technology devices.
5. Behavioral support	Functional analysis, antecedent strategies such as the manipulation of ecological and setting events and the provision of schedule and activity choices, teaching alternate adaptive responses, building environments with effective consequences.
6. In-home living assistance	Personal maintenance and care, transfers and mobility, attendant care, housekeeping and homemaker services, dressing and clothing care, home health aides, medical alert devices, communication devices, and architectural modifications.
7. Community and school access and use	Car pooling and transportation programs, recreation and leisure involvement, transportation and pedestrian training, modification of vehicles, community use awareness and opportunities, and interfacing with generic agencies including schools, advocacy, and legal assistance.
8. Health assistance	Medical appointments, health supervision and interventions, counseling appointments and interventions, medication taking, hazards awareness, physical therapy, and mobility assistive devices.

Note. Adapted from *Mental Retardation: Definition, Classification, and Systems of Supports* (p. 104) by Luckasson et al., 1992, Washington, DC: American Association on Mental Retardation (AAMR). Copyright 1992 by AAMR. Adapted by permission.

needed supports, and desired outcomes (Figure 2). The intensities of supports and examples of each are as follows:

Intermittent: Supports on an "as needed basis." Characterized by episodic nature, person not always needing the support(s), or short-term supports needed during life-span transitions (e.g., job loss or an acute medical crisis). Intermittent supports may be high or low intensity when provided.

Limited: An intensity of supports characterized by consistency over time, time-limited but not of an intermittent nature, may require fewer staff members and less cost than more intense levels of support (e.g., time-limited employment training or transitional supports during the school to adult provided period).

Extensive: Supports characterized by regular involvement (e.g., daily) in at least some environments (such as work or home) and not time-limited (e.g., long-term support and long-term home living support).

Pervasive: Supports characterized by their constancy and high intensity; provided across environments; potential life-sustaining nature. Pervasive supports typically involve more staff members and intrusiveness than do extensive or time-limited supports.

The current interest in the use of supports extends across disciplines and habilitation areas, including education (Haring & Breen, 1989; Polloway & Smith, 1988), families (Roberts, Wasik, Casto, & Ramey, 1991), employment (Hughes, Rusch, & Curl, 1990; Nisbet & Hagner, 1988), and medicine (Coulter, 1991; Parette, Hourcade, & Brimberry, 1990). Although the concept of needed supports is by no means new, what is new is the belief that the judicious application of appropriate supports can improve the functional capabilities of individuals with mental retardation (Schalock, in press).

The 1992 System shifts the diagnostic effort from estimating the level of an individual's deficiency (mild, moderate, severe, profound) to estimating the intensities of needed supports (intermittent, limited, extensive, pervasive). Development of support profiles that bridge all four dimensions will depend upon assessment information from sources beyond education/habilitation program staff and family. Thus, it is anticipated that support profiles will provide a rich foundation of assessment information relevant to the development of individual plans, resulting in education/habilitation programs working in tandem with other sources to meet the person's identified support needs. Further, given the emphasis placed both on the value of integration among peers and the provision of supports, it is also anticipated that the 1992 System will promote integrated services with

supports, based on the principle that integration among peers is a primary means for reducing functional disabilities, whereas the purpose of supports is to advance and enrich the success of integration.

The 1992 System's support focus is controversial. For example, MacMillan et al. (1993) suggested that a person's support levels might simply become substitutes for the former largely IQ-based levels of mental retardation. There are several ways in which the former levels of mental retardation differ radically from the 1992 System's levels of support intensities. First, the intensities of needed supports is based upon a person's strengths and limitations in four dimensions (p. 182); by contrast, levels of deficit were limited to assessment in the first dimension and often simply dependent upon an IQ or IQ plus a global adaptive behavior score. Second, support assessment involves many disciplines working as a team and analyzing a variety of assessment findings. Formal norm-referenced measures are supplemented with criterion-referenced measures, observation of and interaction with the individual family members and education/habilitation staff, and clinical judgment. Third, levels of needed supports are founded upon the strengths and weaknesses of an individual and her or his environment, not simply upon an individual's intellectual limitations. Fourth, levels of needed support are viewed as potentially changing and thus requiring re-assessment, not as static descriptions of intellectual traits. Fifth, with an individual's support profile at any given time, there is likely to be a varied array of needed supports and intensities, making a global summary label meaningless. Finally, support predictions simply are not ability predictors. These reasons would make it illogical to substitute levels of support for levels of deficiency, and we hope that service delivery systems will not be tempted by administrative simplicity to do so.

The use of supports is just emerging in the education/habilitation fields, and one needs to consider carefully the standards that guide their development and use. This is especially true because accreditation and licensing/certification standards currently focus primarily on service supports that are driven by the Individual Education/Habilitation Plan implemented through a structured, multidisciplinary program planning process. There are currently no comparable standards for supports because support services frequently do not require the level of structure or intensity of typical education/habilitation programs (Pearce, 1990).

Nevertheless, there is still a need for developing standards to guide the assessment and use of supports. Seven proposed standards are as follows: (a) supports occur in regular, integrated environments; (b) support activities are performed primarily by individuals normally working, living, or engaging in recreation within that environment; (c) support activities are individualized and person-referenced; (d) supports are coordinated through a person such as a supports manager; (e) outcomes from the use of supports are evaluated against quality indicators and valued, person-referenced outcomes; (f) the use of supports can fluctuate and may range from life-long duration to a temporary need during different stages of life; and (g) supports should not be withdrawn prematurely.

Clinical Judgment as a Key Factor

The 1992 System advocates for using professional/clinical judgment to make decisions and employing an interdisciplinary team process to integrate and blend the multidimensional assessment and needed supports information. The team process not only requires certified personnel (e.g., psychologists determining IQ level), but also the use of clinical judgment involved in developing the Individual Education/Habilitation Plan (Barnett, 1988; Paul, 1987; Snell & Brown, 1993). There are at least three implications of an increased focus on clinical judgment.

First, this increased focus on clinical judgment does not deviate from current practice. For example, the DSM-III-R Manual (American Psychiatric Association, 1987) indicates that norm-referenced adaptive behavior scales should be used in conjunction with a clinical judgment of general adaptation. If these scales are not available, clinical judgment of general adaptation alone, the person's age and cultural background being taken into consideration, may suffice. (p. 29)

Statements regarding the need for professional judgment are also found throughout the Standards for Educational and Psychological Testing (American Psychological Association, 1985).

Second, clinical judgment will be based, in part, on considerable observations across settings, a consideration of the prior intensities of supports available to an individual, and reevaluation over time. For example, individuals who have had few opportunities for an integrated life or have had inappropriate instruction may initially demonstrate extensive limitations and needed supports in many adap-

tive skills. However, with the addition of environmental supports and effective intervention, they should gain sufficient skills to reduce their limitations and, in some cases, may no longer exhibit limitations in adaptive skills consistent with the definition of mental retardation (Polloway, 1985).

Third, clinical judgment is essential in today's multicultural world. Concerns related to the importance of cultural and linguistic variance in accurate assessment have received ample attention (e.g., Reschly & Ward, 1991). Sensitivity to cultural and linguistic diversity clearly requires reliance on multifactorial assessment. The increased emphasis on the importance of adaptive skills found in the 1992 System represents one way to respond to the increased sensitivity to cultural differences. Another approach (included here for illustrative purposes only) is reflected in the System of Multicultural Pluralistic Assessment—SOMPA (Mercer & Lewis, 1987). With SOMPA, a traditional IQ is determined, but an appropriate sociocultural normative group is also established for the individual. Thus, pluralistic norms are specifically derived by the identification of background characteristics thought to be related to intellectual performance, the determination of the relative weight of each characteristic in the prediction of performance, and the determination of a predicted score for an individual from his or her cultural background.

Such an approach not only offers an adjunct to traditional assessment, but also highlights the critical issues that need to be "rethought" about the assessment of individuals with mental retardation. Chief among these issues are the challenges involved in refining current assessment practices and embarking on major efforts to develop new instruments and procedures that are responsive to the changing zeitgeist.

Education and Habilitation Practices Based on Needed Supports

Education programs serving individuals with mental retardation have typically evolved to reflect a person's "level of deficit." Thus, special education programs adopted classification labels such as educable (mild) and trainable (moderate) (Polloway, 1985). One outcome of these practices for people with mental retardation has been their segregation from others who do not have the same label (Deno, 1970; Taylor, 1988). Davis (1992), for example, reported that in the 1989-1990 school year, only 6.7% of children with mental retardation were edu-

cated in general education classrooms with typical peers.

The 1992 System reinforces a movement away from the traditional uses of the terms educable and trainable that frequently conjures inappropriate stereotypical images. The system also lends backing to recent practices in the public schools that assign special education services and supports based on functioning level rather than IQ-derived levels of retardation (Snell, 1993). The 1992 System is also consistent with the increasing movement toward the inclusion of students with mental retardation into regular classrooms, the increasing merger of general and special education, and the concept of supported education (Giangreco & Putman, 1992).

In reference to the adult habilitation system, the 1992 System should result in an increased array and variety of service delivery mechanisms based on the demonstrated needed supports of individuals. The focus on the intensities of individual needed supports interrupts the pattern, common to many service delivery systems, of equating intensities of service needs with restrictiveness of setting. In addition, the focus is consistent with current habilitation practices related to supported employment, living, and adulthood (Ferguson & Ferguson, 1993; Googins, 1989; Schalock & Kiernan, 1990). For example, with the passage of the Rehabilitation Amendments of 1992 (P.L. 102-569), vocational services have moved from the need of individuals to demonstrate an employment potential to one of presumption of eligibility for services. These amendments also include services for personal assistance, transition, and supported employment.

The 1992 System also reflects the fact that many individuals with mental retardation do not have limitations in all adaptive skill areas and, therefore, do not need supports in those unaffected areas. This part of the System changes the focus of service delivery from a maintenance orientation to one that emphasizes the linking of planning, eligibility determination, and service provision to the person's intellectual and adaptive skills level, along with the needed intensities of supports.

Prevention Based on an Intergenerational Model

The etiology of mental retardation has historically been divided into two broad categories: biological or psychosocial (MacMillan, 1989; Zigler & Hodapp, 1986). However, this

distinction is probably no longer entirely valid. For example, McLaren and Bryson (1987) noted that up to 50% of individuals with mental retardation have more than one possible causal factor, often reflecting cumulative or interactive effects. Based on this reality, Scott (1988) proposed a multiple risk-factor approach that includes factors from both categories, converging to predispose an individual to the disabling process.

A multifactorial approach to etiology requires expansion of the list of causal factors in two directions: types of factors and timing of factors. The first direction extends etiological factors into the four groupings of biomedical, social, behavioral, and educational (Coulter, 1992). The second direction describes the timing of the occurrence of causal factors according to whether they affect the parent, the person with mental retardation, or both. This aspect of causality is referred to as *intergenerational* to describe the influence of factors present during one generation on the outcome in the next generation (Galler, 1988; Ramey, 1990).

The multifactorial and intergenerational origins of mental retardation have important implications for prevention and can be divided into three levels (Rowitz, 1986): primary, which is focused on actions that occur before the onset of the condition; secondary, which is focused on actions that shorten the duration of or reverse the effects of existing problems; and tertiary, which limits the adverse consequences of a problem or improve the individual's level of functioning. Specific examples of each are presented in Table 2.

Research Based on the New Paradigm

The research community is also undergoing change that is influenced significantly by the current emphasis on inclusion, empowerment, and supports (McFadden & Burke, 1991). There is an emerging "pragmatic research paradigm" that emphasizes longitudinal studies and a more comprehensive framework for evaluating outcomes (Fishman, 1991; Schalock & Genung, 1993). As these shifts merge with the 1992 System, one can expect significant changes in mental retardation research. Three of these potential changes are discussed below.

First, the 1992 System will require greater precision in describing individuals with mental retardation because intelligence and adaptive skill levels, strengths and weaknesses, and etiology are necessary for a comprehensive description. The net effect will include increased

Table 2
Etiology and Prevention of Mental Retardation: A Multidimensional Model

Type of prevention/ Recipient of service	Etiology factor			
	Biomedical	Social	Behavioral	Educational
Primary				
Parent*				
Child	Lead screening Nutrition	Prevention of abuse/neglect	Acceptance	Sexuality
Teenager	Nutrition	Family support	Avoidance of substance use (or treatment)	Parenting
Parent to be	Prenatal care and screening Nutrition	Emotional and social support	Avoidance of substance use (or treatment)	Parenting
Primary and secondary				
Person with (or at risk for) MR				
Newborn	Metabolic screening	Parent/child interaction	---	---
Child	Nutrition Lead screening	Family support Avoidance of abuse/neglect	Avoidance of accident and injuries	Early infant intervention Head Start Special education Vocational training
Tertiary				
Person with MR as adult	Health care	Inclusion	Independence	Productivity

Note. Adapted from "An Ecology of Prevention for the Future" by David L. Coulter, 1992, *Mental Retardation*, 30, p. 367, and *Mental Retardation: Definition, Classification, and Systems of Supports* (p. 73) by Luckasson et al., 1992, Washington, DC: American Association on Mental Retardation (AAMR). Copyrights 1992 by AAMR. Reprinted by permission. MR = Mental retardation. *Parent of person with mental retardation at different stages of life.

costs in obtaining data, more precision in description and therefore generalization, better epidemiology studies, and better replications. Second, there will be less emphasis on the person as the independent variable and more emphasis on environments and supports as independent variables and the person's adaptive skills, living/employment status, quality of life, and level of satisfaction as dependent variables. Third, the research community will need to adapt to what we may need to give up: the perception that populations within the previous four largely IQ-based levels of disability were homogeneous.

Conclusion

In conclusion, the 1992 System that reflects the changing conception of mental retardation has generated considerable discussion about what mental retardation is, how it can best be diagnosed, and on what basis (if any) individuals with mental retardation should be classified. The reactions to the 1992 System are not unlike the reactions to a scientific revolution discussed by Kuhn (1970), in which there are doubts or difficulties with a particular approach, conflict between the "old" and "new" approaches, and the eventual acceptance of a new

paradigm whose major characteristics include attracting converts, being sufficiently open-ended so that it is testable, and being attractive and hopeful.

The authors of the 1992 System grappled with a number of issues during the 4-year development period before final acceptance by the AAMR Board of Directors in 1992. Throughout four widely circulated drafts of the Manual, input and considerable discussion centered around critical issues, such as the nature of intelligence and its role in the diagnosis of mental retardation, the composition and measurement of adaptive skills and their role in the diagnosis of mental retardation, and the use of supports in both the definition of mental retardation and the classification of individuals.

We were aware of potential problems with various components of the 1992 System. For example, during the fourth targeted field test of the Manual, we surveyed specialists in the field of mental retardation working in government, universities, and service agencies about the proposed 1992 System. One third of the respondents indicated that they saw problems with the definition, 75% saw problems with the classification component, but 95% felt that the 1992 System reflected the emerging trends in mental retardation. We also recognized that the

field of mental retardation is in the middle of a paradigm shift and that it will continue to undergo significant future changes.

The assessment, diagnostic, and habilitation procedures required by the 1992 System will undoubtedly change and be implemented over time, as was true of the 1983 definition (Lowitzer, Utley, & Baumeister, 1987). There is already evidence that the 1992 System is taking root in such areas as conducting research, publishing standards, guiding research and training, assessing eligibility for support services, funding services, developing new instruments to measure adaptive skills, and conducting court-related and forensic work (Luckasson & Spitalnik, in press).

Change never comes easy. However, the challenges and opportunities provided by the changing conception of mental retardation and the 1992 System set an important agenda for the next decade.

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