DEVELOPMENTAL DISABILITIES PROJECT
ON RESIDENTIAL SERVICES
AND COMMUNITY ADJUSTMENT

Project Report No. 1

Assessment of Behavioral Characteristics of People Who Are Mentally Retarded

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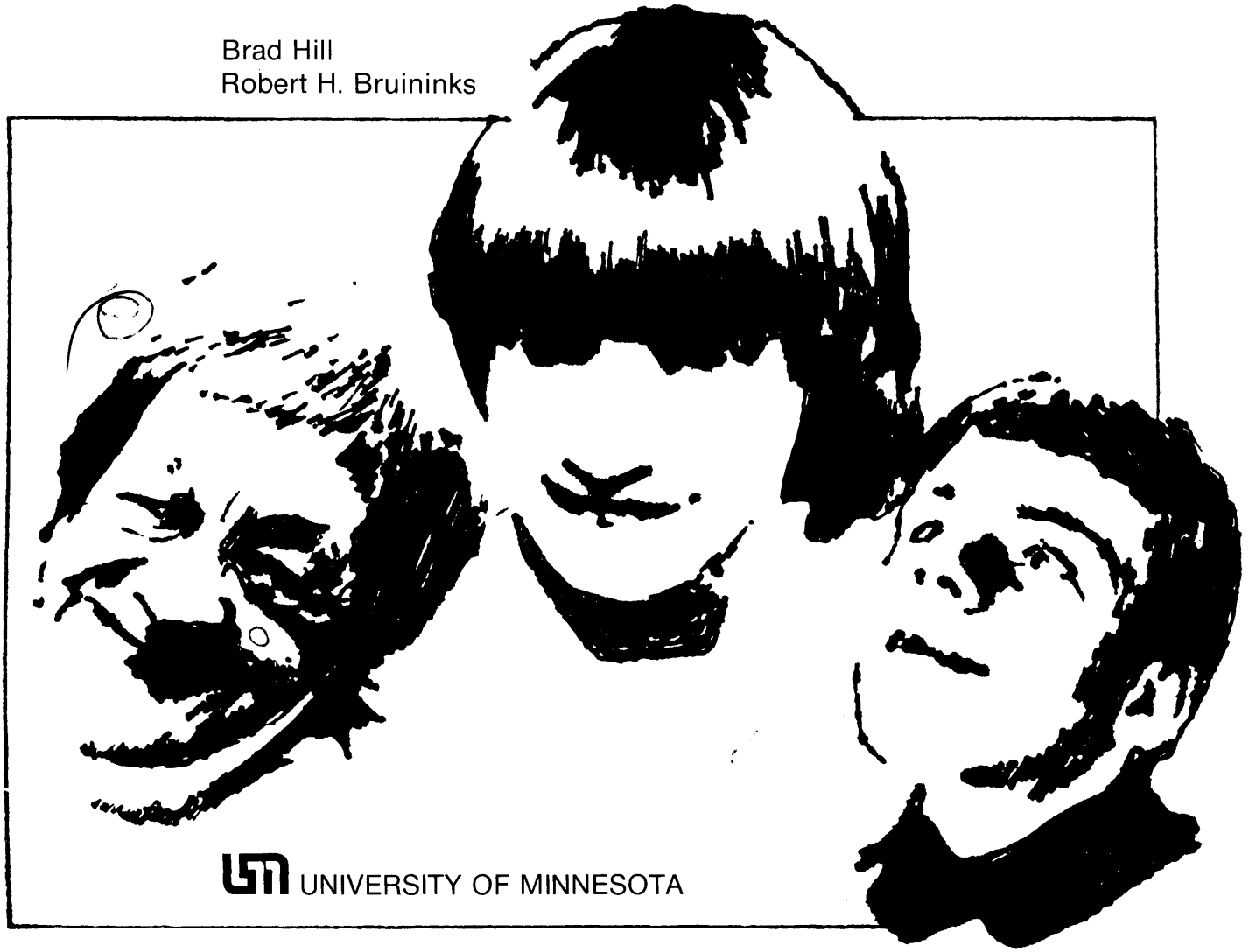

UNIVERSITY OF MINNESOTA

The Developmental Disabilities Project on Residential Services and Community Adjustment is conducting a nationwide study of mentally retarded persons in residential programs. Information is being collected on (a) the administrative and general characteristics of residential programs for mentally retarded individuals, (b) the behavioral and physical characteristics of mentally retarded people in residential programs, (c) factors related to admission and readmission to large state residential programs, and (d) the adjustment of former residents of state residential facilities to community residential settings.

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By
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ABSTRACT

Issues relating to the measurement of adaptive behavior of mentally retarded people are discussed. Evaluation instruments have been designed to describe an individual's behavioral characteristics or to evaluate these characteristics as a basis for program planning. Attempts to use adaptive behavior to predict community adjustment have been unsuccessful, probably due to many intervening variables and to problems in defining community adjustment. Although adaptive behavior scales gather useful descriptive information, they are less effective in predicting whether or not assessed individuals will apply their abilities in an adaptive manner. Motivation and personality factors are discussed as aspects of adaptive behavior which need further investigation.

TABLE OF CONTENTS

INTRODUCTION

Historically, discussions about mental retardation have often stressed deficiencies in social competence. The concept of social competence, now referred to as adaptive behavior, was officially introduced as a classification dimension in the area of mental retardation in 1959 (American Association on Mental Deficiency, 1959), and first incorporated into the definition of mental retardation in 1961 (Heber, 1961). Heber (1961) described adaptive behavior as "the effectiveness with which the individual copes with the nature and social demands of his environment" (p. 61). Although many writers have subsequently expanded or elaborated upon this definition, the concept remains essentially the same. Past and present attempts to measure adaptive behavior do so by assessing an individual's current abilities as they are habitually or routinely expressed, and inferring that these abilities or skills will be applied adaptively in a variety of situations within the environment.

Assessment of adaptive behavior provides descriptive information regarding the functional abilities currently possessed or expressed by an individual in a given situation. Unlike IQ, adaptive behavior is situation dependent and is subject to short-term environmental manipulation. To take one example, the knowledge that an individual can eat with a spoon, but not with a fork, has clear implications for educational planning. This is a primary advantage of an adaptive behavior assessment over other types of measurement.

However, the dynamics of adaptive behavior are not well understood. Many years ago, researchers realized that the intelligence quotient was not adequate for describing an individual's overall abilities. There are numerous published reports which have failed to find IQ to be predictive of community adjustment of retarded people (Windle, 1962). Likewise, there are many reports which have failed to find adaptive behavior scores to be predictive of community adjustment (Eagle, 1967).

This paper examines concepts related to adaptive behavior, the adequacy of its definition, the process through which current adaptive behavior measures were developed, and the validity of inferences which have been made relating measured skills to their application in daily life. The primary goal of this review and discussion is to find a means of accurately describing retarded individuals and their abilities to adapt to their environments.

Development of the Adaptive Behavior Concept

Edgar Doll began work on the Vineland Social Maturity Scale in the 1920's. First published in 1935 (Doll, 1935), the Vineland Social Maturity Scale was relatively unique in that it attempted to measure an overall characteristic of human behavior which Doll called "social competence." He conceived of social competence in terms of personal independence and social responsibility the end result of cultural, physical, intellectual, habitual,

emotional, educational, occupational, and other factors. Furthermore, Doll stressed that social competence was a dynamic phenomenon of progressive self-direction and independence that could be quantified in terms of normative scores and deviations from normal maturational development. In constructing the Vineland Social Maturity Scale, Doll drew heavily from child development data and from existing descriptions of adult behavior. One hundred and seventeen items were grouped into 17 age levels according to difficulty. Scoring of performance resulted in a "social age" and a "social quotient." For many years the Vineland Social Maturity Scale was unique in that it measured individuals' actual abilities as applied in everyday situations. This information was not measured as directly by intelligence tests which appeared in subsequent years. The Vineland Social Maturity Scale has often been used with retarded persons because it differentiates between them in a meaningful way. Two retarded people who obtain the same intelligence quotient often perform differently in their everyday environment and the Vineland Social Maturity Scale has attempted to quantify these differences.

In 1952 the American Association on Mental Deficiency (AAMD) appointed a committee to study nomenclature in the area of mental retardation because, in classifying retarded people, they felt uncomfortable in relying on IQ scores alone (Sloan, 1954). The Nomenclature Committee recommended that numerical quotients used to define levels of retardation be considered in terms of several

factors to include educational, social, motor, and other abilities in addition to the intelligence quotient.

As a continuation of the AAMD Nomenclature Committee's work, Sloan and Birch (1955) presented a rationale for describing and quantifying degrees of retardation. At that time professionals recognized that the term mental retardation referred to an individual's overall functioning, and that behavior was a dynamic and interactive process not restricted to IQ. However, there was not yet a suitable means of classifying or quantifying overall functioning. Sloan and Birch proposed that degree of retardation should be measured along a continuum of abilities in three areas--maturation, learning capacity, and social adjustment. They proposed a system of classifying four degrees of mental retardation based on four narratively described age dependent levels of behavior. Clinicians were urged to use their own judgment based on any number of tests or assessments available to determine which level best described each retarded individual.

In 1961 the American Association on Mental Deficiency published a Manual on Terminology and Classification in Mental Retardation (Heber, 1961). That manual, the fifth in a series published by the AAMD since 1919, first officially incorporated a concept of adaptive behavior into the definition of mental retardation. This definition was the now familiar "mental retardation refers to sub-average general intellectual functioning which originates during the developmental period and is associated with impairment in

adaptive behavior" (Heber, 1961, p. 3). Adaptive behavior was considered to be an age-related concept that referred to the overall effectiveness with which an individual adapted to the natural and social demands of his environment. Heber pointed out that although there was no existing comprehensive standardized measure of adaptive behavior, the Vineland Social Maturity Scale (Doll, 1936) was the best instrument available for that purpose at the time. He suggested that levels of adaptive behavior could be described in terms of standard deviations from the mean for a normal group of individuals of a given age, and that these levels could be numbered to correspond with levels of measured intellectual ability, also described in standard deviations.

Leland (1964) delineated five such levels of adaptive behavior for children in a narrative manner much as Sloan and Birch had done earlier. Leland's contribution was significant in two respects. First, he used the term "adaptive behavior." Second, he suggested that in addition to being of diagnostic value, adaptive behavior measurement could be of importance in devising rehabilitation goals for retarded people.

Measures of Adaptive Behavior

In 1964 the American Association on Mental Deficiency, in conjunction with Parson's State Hospital and Training Center,

received a National Institute of Mental Health grant to study and demonstrate the function and measurement of adaptive behavior. A series of specialized conferences brought together people interested in the adaptive behavior concept (Leland, Nihira, Foster, Shellhaas, & Kagin, 1966). The general goal of assessing adaptive behavior was to provide a quantitative description of behaviors among which retarded people differed from one another in respect to their ability to adapt to normal community life (Nihira & Foster, 1966). The Adaptive Behavior Project proceeded to empirically identify dimensions of observable behavior in relationship to environmental and situation specific demands made upon retarded people. Both an individual's actual ability to perform certain behaviors and his ability to initiate and follow through with them were considered important (Leland, 1966). Note here that emphasis was placed on community adjustment more than upon measurement of adaptive behavior for the purposes of program planning.

The Adaptive Behavior Project led to the development of the Adaptive Behavior Scales (Nihira, Foster, Shellhaas, & Leland, 1969). Initial items were drawn from seven existing behavior checklists, including the Vineland Social Maturity Scale and the Cain-Levine Social Competency Scale (Cain, Levine, & Elzey, 1963). This process yielded 325 items pertaining to behaviors that would discriminate an individual's behavioral abilities. Items were grouped into 10 functionally related areas called behavior domains, which ranged from self-help (degree of independent functioning) to socialization

and occupational skills. Preliminary checklists were administered to 307 institutionalized retarded persons during the summer of 1965 (Nihira & Foster, 1966). Based on the results of this pilot study, items were analyzed on several dimensions including their ability to discriminate among individuals previously assigned to one of Leland's (1964) five narratively described categories of adaptive behavior. The checklist did relatively poorly at discriminating among individuals with either very high or very low ability. It was hypothesized that the checklist's failure to discriminate among such individuals may have been due to the fact that it lacked items relating to maladaptive symptoms (Leland, Shellhaas, Nihira, & Foster, 1967).

To alleviate this problem, questionnaires were developed in which institutional personnel, public school special education teachers, and day activity center attendants were asked to report behaviors that would not normally be tolerated in various environmental situations. Twenty-five thousand incidents of maladaptive behavior were collected and classified into 35 specific behavior categories. Some of these incidents were due to a lack of skill on the part of the retarded person. Others were associated with emotional or conduct disturbances (Nihira, 1971). This information led to the development of Part II of the Adaptive Behavior Scales which focused upon assessing maladaptive behavior.

Initially, the scales consisted of separate forms for children and adults. Factor analytic studies (Nihira, 1969a, 1969b)

and item analyses (Leland et al., 1966; Nihira & Shellhaas, 1970) resulted in revisions of these scales, and subsequently, to the 1974 revision of the Adaptive Behavior Scale, a single form for people of any age (Nihira, Foster, Shellhaas, & Leland, 1974).

There are several other instruments that assess social competency or aspects of adaptive behavior. The Cain-Levine Social Competency Scale was developed in the early 1960's. This scale for moderately retarded children attempted to measure social competency, defined as "the development of learned skills which ultimately permits the child to achieve self-sufficiency and socially contributory behaviors" (Cain, Levine, & Elzey, 1963, p. 2). The development of social competence was viewed as an orderly continuum from dependence to independence. Items were developed through interviews with parents, teachers, and other professionals, and by adapting from curriculum guides and existing evaluation instruments. After preliminary administration, items were analyzed and selected on the basis of their difficulty as well as according to their correlation with other subscale items and the total score.

Gunsburg (1974) designed the Progress Assessment Charts to provide a means of systematically observing and objectively recording the social behavior of mentally retarded people, and to assess progress between evaluations. Gunsburg provided a detailed discussion about his conception of social competence and the importance of social competence for retarded people in a book, Social Competence and Mental Handicap (1968). The Progress Assessment

Charts consist of three levels (Primary PAC, PAC-1, PAC-2), each with corresponding Progress Evaluation Index forms upon which scores are recorded graphically. Each PAC, and several recently developed specialized assessments, evaluate skills in four areas--self help, communication, socialization, and occupation, with 20 to 40 developmentally or functionally sequenced items in each area. Scores for adults and children of various ages may be compared via a "social competence index" to those of relatively small comparison groups of similarly retarded people.

The Balthazar Scales of Adaptive Behavior, Part I: Scales of Functional Independence (Balthazar, 1976) and Part II: Scales of Social Adaptation (Balthazar, 1973) were designed to evaluate and plan programs for severely and profoundly retarded individuals. Part I provides a detailed analysis of self-help skills. Part II provides an objective measure of a retarded person's means of coping with people in his/her environment. Handbooks accompanying these scales contain detailed explanations of how to devise program plans based on assessment results.

The Minnesota Developmental Programming System (Bock & Weatherman, 1976) is another example of behavioral assessment designed primarily for program planning purposes. Constructed to provide information about the functional skills of developmentally disabled persons, the system's Behavioral Scales contain 360 items grouped under 18 functional domains. Items within each domain are developmentally sequenced and range from those evident at birth to

complex skills needed for community independence. The Minnesota Developmental Programming System contains materials for devising program plans based on the assessment.

The Vineland Social Maturity Scale, Adaptive Behavior Scale, Cain-Levine Social Competency Scales, Balthazar Scales, Progress Assessment Charts, and the Minnesota Developmental Programming System offer several examples of a much greater number of adaptive behavior assessment devices. Table 1 summarizes the content of five of these scales, and Table 2 their technical characteristics. As these tables reveal, the scales differ from each other in a number of ways. Such differences in content and characteristics often reflect underlying differences in rationale and methodology. The following section examines the rationales and specific methodologies utilized in developing adaptive behavior assessment instruments.

Table 1

Content Areas of Several Adaptive Behavior Evaluation Instruments

Adaptive Behavior Scale Part I	Balthazar Scales of Adaptive Behavior Part I Functional Independence	Balthazar Scales of Adaptive Behavior Part II Social Adaptation	Vineland Social Maturity Scale	Cain-Levin Social Competency Scale	Minnesota Developmental Programming System
Independent functioning Physical development Economic activity	Eating dependent feeding finger foods spoon usage fork usage drinking		Self help general Self help dressing Self help eating Locomotion	Self help	Toileting Grooming Dressing Eating Gross motor Fine motor Money
Language development Numbers and time Domestic activity	Dressing male female Toileting	Verbal communication Response to instruction	Communication	Communication	Receptive language Expressive language Numbers, Reading Writing, Time Domestic behavior
Vocational activity			Occupation		Vocational
Self direction Responsibility		Play activities Adaptive self directed behavior	Self direction	Initiative	
Socialization		Adaptive interpersonal behavior	Socialization	Social skills	Social interaction Community behavior Recreation, leisure time
Part II Violent & destructive Antisocial Rebellious Untrustworthy Withdrawn Stereotyped Inappropriate interpersonal Unacceptable vocal habit Unacceptable or eccentric Self abusive Hyperaction Sexual aberrant Psychological disturbance Use of medication	Supplement: eating checklist night toileting	Unadaptive self directed Unadaptive interpersonal			

Table 2

Technical Characteristics of Several Adaptive Behavior Instruments

	Adaptive Behavior Scale	Balthazar Scales of Adaptive Behavior Part I Functional Independence	Balthazar Scales of Adaptive Behavior Part II Social Adaptation	Vineland Social Maturity Scale	Cain-Levine Social Competence Scale	Minnesota Developmental Programming System
Means of Administration	Completed by person familiar with subject, or by interview of person familiar with subject	Direct observation Interview for section on toileting	Direct observations frequency counts/unit of time	Interview of informant	Interview of informant	By informant or by interview of informant
Scoring	Points for each item subtotaled for each domain	Each eating & toileting item scored as proportion (1-10) of occurrence to relevant opportunity Dressing - 0-6 point basis	Tally of number of occurrences of each behavior/unit of time	+ or - with qualifications for lack of opportunity; sum of total score	Points computed for each domain	Four choice scale for each item, raw score total for each domain
Norms	Percent ranks for each domain for each of 11 age ranges	Percentile for each class of behavior	Mean score for each item	Total score converted to age equivalent score	Mean score for each subscale	Not available at this time
Standardization	100-500 institutionalized individuals per domain	N = 122 severely mentally retarded institutionalized	N = 288 severely mentally retarded institutionalized	N = 620; 20 subjects at each age level institutionalized (Doll, 1953)	N = 716 age 5-13 IQ 25-60	Not available at this time
Item Arrangement	Grouped by domain	Ranked hierarchy	By category	Grouped according to age	Grouped by domain	Order of difficulty within each domain
Score Presentation	Profile of percentile score on each domain	Profile of raw or percentile scores	Raw scores, can be graphically displayed	Quotient of social & mental age	Percentile scores by domain	Profile of raw scores
Target Population	Mentally retarded or mentally ill people	Severely retarded	Severely retarded	People of all ages	Moderately & severely retarded children	Mentally retarded

DEVELOPMENT AND ANALYSIS OF ASSESSMENT INSTRUMENTS

It is impractical to sample every aspect of human behavior. Decisions must be made as to which behaviors accurately reflect an individual's current performance and are useful in predicting performance in other settings.

The purpose of an assessment device influences the type and detail of items it contains. In order to conceptualize the infinite number of possible behaviors to be examined, most researchers have grouped functionally similar behaviors into areas called domains. Katz (1977) summarized 18 scales containing domains related to activities of daily living. Table 3 presents examples of the many domains which various evaluation instruments contain. Each of the domains listed in this table is contained in one or more of over 150 behavior checklists that have been reviewed by Walls, Werner, and Bacon (1976). Some scales group many behaviors into a few general domains, whereas others contain domains which are quite specific. In Table 3, general domains appear along the left and less general domains appear to the right. It is apparent that some scales go into much more detail in categorizing behaviors than do other scales, and that any grouping or categorization of this type is the result of many arbitrary decisions. Each domain may reflect a number of personal traits which may or may not necessarily be related. For example, each domain categorized in the self-help area is reliant on motor proficiency for execution, and most domains categorized in

Table 3

Examples of Behavior Domains[1]

Communication	physical communication language linguistic	receptive language listening understanding comprehension auditory comprehension lip reading sign language	expressive language verbal speech speaking voice sign language	conceptual expressed thought conversation	writing functional reading
Physical development	gross motor basic motor motor activities body-motor	fine motor visual motor perceptual motor hand motor manual dexterity perceptual skills	balance-posture sitting ambulation locomotion crawling walking stairs	physical activity physical productivity strength health sleep	
Self help	drinking eating toileting dressing	hygiene appearance cleanliness washing showering grooming tooth brushing care of clothing clothes selection	manners table manners meal behaviors bedtime routines personal routines		
Community orientation	daily living cottage behavior semi-independent living household responsibility home adjustment household business	housekeeping housecleaning cooking laundry safety	transportation travel postal telephone shopping	religious activities cultural activities recreation visiting play music	
Vocational	job training	quality of work amount of work			
Learning (academic)	cognition memory knowledge thinking reasoning conceptual	educational development school academic	measurement math numerical time money		

Table 3 cont.

Personality	affect emotion awareness attention span distractibility	initiative self management self direction independence interest conceptual-motivational system achievement orientation motivation	self esteem self concept body image dominance attitude	social socialization interaction social maturity social awareness response to others social skills cooperation participation discipline response to supervising withdrawn antisocial	fear phobias fear of failure anxiety response to frustration intact hedonism inability to delay neuroticism psychoticism
Behavior problems	irritability disruptive screaming hyperactive	assaultive physical aggression verbal aggression maladaptive verbalization violent hostility			

[1]Included in checklists reviewed by Walls, Werner and Bacon (1976).

the community self-sufficiency area presume proficiency in self-help skills. Although adaptive behavior domains do not necessarily represent independent areas, they are nevertheless useful in providing a basis for conceptualizing adaptive behavior and for aiding in interpretation of assessment results.

Any number of individual assessment items may be constructed to measure each area of behavior. In some cases, large numbers of items are initially devised and are later categorized statistically on the basis of factor analysis. Researchers' decisions about the domains to investigate and the degree to which each should be analyzed are related to the purpose and design of the instrument.

Purpose of Assessment

The purpose for which an assessment is intended influences the form it will take. There have been two basic approaches taken in assessing adaptive behavior. First, assessment may be done for the purpose of describing an individual. In this case the degree of detail and areas of content can be arbitrarily decided depending upon how much descriptive information is sought. Second, many adaptive behavior measures have been designed for the purpose of evaluating an individual's relative abilities as a basis for developing an instructional program. These assessments usually require a greater amount of detail in order to obtain an exact measure of an individual's current ability, including relative

strengths and weaknesses, so that a training program can be devised and subsequent progress identified.

Questionnaires are often used for descriptive data gathering purposes. O'Connor (1976) constructed a 13 item "short form level of functioning test" to gather data on the behavior characteristics of individuals living in community residential facilities throughout the United States. These items were related to those in the original Adaptive Behavior Scales (Nihira et al., 1969), with each item containing four to seven alternatives that described a broad range of abilities.

The Individualized Data-Base Project (Sounders, Butkus, & Cassady, 1973) attempted to establish a data system for monitoring client development in community programs. This project utilized both the AAMD Adaptive Behavior Scale and a short form of this instrument, the Behavior Development Survey, to gather data longitudinally.

Payne, Johnson, and Abelson (1969) used a questionnaire to gain physical and behavioral data on a large number of institutionalized individuals in a survey conducted by the Western Interstate Commission for Higher Education. Items contained in their questionnaire were selected and developed by professional staff at the institutions included in the survey. No attempt was made to go into a great amount of detail concerning specific behavioral skills.

Instruments designed for evaluation and program planning purposes are usually more detailed than general descriptive question-

naires. The Balthazar Scales of Adaptive Behavior require extended direct observations to count behavior frequency and to qualify its characteristics. Results of this assessment are in turn highly individualized, have direct implications for program planning, and are extremely sensitive to change. The behavioral scales of the Minnesota Developmental Programming System utilize 20 degrees of difficulty for each of 18 behavior domains. These detailed evaluation scales were designed primarily for planning individual programs for retarded people.

The Vineland Social Maturity Scale and Cain-Levine Social Competency Scale appear to have been designed primarily to provide comparative developmental information regarding social competence. The Vineland provides a single numerical estimate of an individual's overall social competency. This scale can be used for measuring growth over varied time periods or for making gross differentiations among people. The Cain-Levine Social Competency Scale is somewhat more specific in that it provides subscores in several behavioral areas, revealing a profile of individual strengths and weaknesses. Results obtained from administering this scale could be used as a basis for curriculum planning or for measuring change in performance level over time, but the scale content itself is not detailed enough to provide for a specific training plan. The Adaptive Behavior Scale was designed to be used for multiple purposes, including selection of individuals for certain programs, comparison of abilities over time, comparison of abilities expressed in

different situations, and for providing a common means of exchanging information (Fogelman, 1974).

There is no absolute distinction between assessment devices intended for descriptive purposes and those intended for evaluation to develop individualized training programs. Descriptive assessments are usually shorter, less detailed, and often easier to administer. Evaluative assessments are usually longer, but offer prescriptive information and are better able to reflect changes in an individual's behavior over time.

Item Generation and Design

A number of approaches have been taken in constructing individual assessment items. Many test designers begin by reviewing existing evaluation devices and adapting items from them that seem pertinent to their needs (Cain et al., 1963; Nihira et al., 1969). As the number of published instruments has increased, there has been a proliferation of assessment devices constructed by this method (Walls, Werner, & Bacon, 1976). More sophisticated approaches usually glean item information from interviews with parents and professionals, and rely upon the investigators' common sense in using other novel techniques for identifying critical behaviors. Construction of Part II of the Adaptive Behavior Scale utilized a critical incident methodology to identify behaviors considered to be maladaptive in normal living situations (Nihira, 1971). Items were constructed around these behaviors.

Item design should reflect the need to assess behaviors which are observable, to identify the degree of proficiency of the response, and to specify the environmental conditions present at the time of response. In other words, assessments should be written in behavioral language. Individual assessment items usually ask a question like "How does the individual use a spoon?" and offer a limited number of responses which reflect varying degrees of proficiency in using a spoon. Subparts of each question must be unidimensional and must allow for variability (i.e., everybody should not get the same score). Finally, selection of items must take into consideration the amount of time, the degree of effort, and abilities required to administer them.

Data can be obtained either through direct observation or, more often, through an interview with someone who is familiar with the individual being evaluated. These third person reports are economical and appear reliable, if the questions asked are specific. Katz and Lyerly (1963) found that relatives' reports of the behavior of mentally ill adults were quite reliable as long as questions were phrased in terms of "acts like" or "seems as if," so that the rater felt that he was merely an observer who was not explaining underlying phenomena.

Rater judgments improve if raters observe and rate people in familiar situations (Thorndike & Hagen, 1961) and in direct proportion to the rater's previous contacts with the person being evaluated (Wherry, 1952). Abelson and Payne (1969) reported three

studies that attempted to assess whether ward attendants could produce reliable ratings of the behavior of institutionalized retarded people. Two hundred and eighty-five residents were rated by both ward and professional staff in one study, 646 residents were rated and re-rated several weeks later by ward personnel in the second, and 287 residents were rated separately by morning and afternoon shift ward staff in the third. In all three studies, over one-half of the questionnaire items had reliabilities of over 85 percent agreement among item alternatives. In cases where reliability was unsatisfactory, investigators felt that item characteristics themselves were largely responsible, leading them to conclude that ward attendants were relaible raters.

Other means of gathering information are not employed as frequently as interview procedures. Maney, Pace, and Morrison (1964) attempted to use case file information to determine factors related to the need for institutionalization. They found that case material provided a relatively small amount of variance in their factor analytic study. There was great variety in the number and sophistication of people who had contributed information to these files, resulting in a large amount of clinically interesting but statistically meaningless information.

The development of a measure of adaptive behavior involves identifying pertinent behaviors in relation to the environment in which they occur, generating and selecting assessment items, and developing administration and scoring procedures. Having done this,

a series of statistical procedures is usually carried out to determine the degree of meaningfulness of each item individually and of the items as a group.

Final Selection and Statistical Analysis of Assessment Items

Various approaches have been taken to determine which items should be retained in final evaluation instruments. Items of the Adaptive Behavior Scale (Nihira et al., 1974) were evaluated and selected on the basis of (a) their inter-rater reliability, (b) their effectiveness in discriminating among institutionalized retarded persons who had been previously classified at different adaptive behavior levels (according to the AAMD Manual on Terminology and Classification in Mental Retardation), and (c) their effectiveness in discriminating among adaptive behavior levels while variations due to measured intelligence were statistically controlled. Items of the Vineland Social Maturity Scale were retained largely on the basis of their ability to discriminate along progressively increasing difficulty levels related to age. Items of the Cain-Levine Social Competency Scale were selected according to (a) agreement among judges as to rank ordering of item alternatives along a social competency continuum, (b) unidimensionality of items in terms of the specific skills and frames of reference for rating those skills, (c) the fact that item alternatives would permit scaling along at least four levels of difficulty in terms of social com-

petency, (d) a lack of value judgments reflected by a particular cultural orientation, (e) observability of each behavior in the home and its ratability by parents, and (f) applicability of items to both sexes.

There is no single standard for the statistical treatment of behavioral assessment instruments. However, there are several basic statistical considerations which are applicable to all types of evaluation.

Reliability. Reliability refers to the degree to which the results of testing are attributable to systematic sources of error due to differences among persons in a single testing and differences over time in the scores of individuals (Helmstadter, 1964). The classical method of estimating reliability calls for correlating at least two sets of similar measurements. Multiple measurements may be obtained through use of comparable forms, comparison of internal consistency of evaluation items, inter-observer agreement, or through two or more administrations to the same persons over time to assess stability of scores. Different methods of determining reliability account for different sources of measurement error.

Comparable forms are not generally utilized in assessing adaptive behavior, probably because most assessment devices attempt to gather information through selection of specific behaviors. It may not be reasonable or possible, for example, to have alternate forms for behaviors such as hand washing.

The importance of internal consistency depends to some extent upon item format. Estimates of reliability through internal consistency approaches are most important for items that are scored pass or fail and are relatively homogeneous in content. Since most adaptive behavior scales assess a wide range of behaviors and levels of performance, internal consistency is not always an appropriate test. However, in instruments like the Cain-Levine Social Competency Scale, which contains four domains of items each with hierarchically arranged item alternatives, internal consistency is important. Internal consistency is also important for the assessment of factors such as socialization, personality, or motivation, where these dimensions are reflected in many behaviors.

Inter-observer reliability, the extent to which two independent observers agree, is usually computed as percent of observer agreement. For an assessment which requires yes/no responses to questions, or for interval recording, this is an easy matter. However, when test items require graded responses such as "rate on a scale of 1 to 5," a product moment correlation is more meaningful. If one observer scores an item as 4 and another observer scores it as 3, product moment correlation takes their level of agreement into account, whereas a simple percentage of agreement index does not. Correlation measures offer a useful approach to assessing extent of agreement, whereas percent agreement is a well accepted, easily used index of inter-observer reliability.

Assessing reliability of adaptive behavior measures is not a simple proposition. The content of such scales is rarely homogeneous in that it samples a wide range of behavioral skills and often uses a variety of item formats within a single scale. Since these assessments frequently require the judgment of informed observers regarding what the person can do or does do, measures of inter-observer agreement within and across different settings and of stability across short time periods appear to be the most appropriate means of assessing reliability of adaptive behavior measures.

Validity. "Questions of validity are questions of what may properly be inferred from a test score; validity refers to the appropriateness of inferences from test scores or other forms of assessment" (APA, 1974, p. 25). Validity itself is inferred, not measured. It is a process which aids in judging the value of a measurement device, but in each case the type of validity and means by which it was inferred must be considered.

There is a question concerning which dimensions of adaptive behavior are significant in determining people's ability to adapt to their surroundings. Validation requires that a behavior domain be defined clearly and that evidence be presented showing that inferences made from measurement of this behavior are accurate. Several validation studies are desirable for any set of generalizations, since the conditions of any single validity study are never repeated.

There are four major types of validity--concurrent, predictive, content, and construct--although none of these exist independently of the other. Predictive and concurrent validity apply when one compares an individual's test scores to his most probable standing on an independently determined criterion. Adaptive behavior scales, for example, have frequently been validated by comparing the scores of persons placed in different school classrooms (special or regular) or habilitation programs. However, in such studies there is often a question as to whether or not the criterion itself is clearly defined. Classroom placement, for example, may have been the result of subjective decisions that includes factors unrelated to an individual's adaptive behavior.

Content validity is the inference that specific behaviors sampled by a test are representative of the universe of situations that the test intends to represent. Content validity is of utmost importance in designing and selecting test items. Many test makers rely on professional judgment as an aid in establishing content validity. Many measures of adaptive behavior are lengthy because of their attempt to measure a wide range of behaviors, whereas others clearly specify a limited age or degree of disability for which they are intended. In order to establish content validity, performance areas must be clearly specified. The relatively vague definition of adaptive behavior generally makes validation on the basis of content a difficult task, since a person's behavior is influenced by many factors that are specific to the environment.

Definitional disagreements and the characteristics of environmental settings have lesser effects on those specific aspects of behavior related to observable skills such as holding a spoon, since these skills are logically related to the items that measure them.

Finally, construct validity refers to measurement of a theoretical idea, or construct, which explains or organizes some aspect of existing knowledge. Personality factors are examples of constructs which cannot easily be defined in concrete terms. Behavior domains are constructs, each composed of a large number of individual characteristics. In many cases these constructs have been identified empirically through factor analysis, a statistical procedure for discovering commonalities among a large number of data elements.

Determining the validity of adaptive behavior measures is difficult for a number of reasons: (1) Definitions of adaptive behavior are general and provide little guidance in clearly defining areas of content; (2) Adaptive behavior is likely a function of many complex influences such as the characteristics of settings, the abilities of the person and the social value to the person of expressing the behaviors assessed by any given instrument; (3) Objective criteria of adjustment for validating adaptive behavior measures do not exist. Given these considerations, approaches that stress all aspects of validity--concurrent, predictive, content and construct--should be used in developing and researching adaptive behavior scales. It is important that studies

of concurrent and predictive validity be conducted to assess whether such measures predict performance in other settings. Content and construct validity are, of course, necessary to develop good items and to establish that measures in this area will produce useful results in evaluating a person's current functioning and training needs. Given the complex nature of the adaptive behavior concept, scales that assess a limited range of skills for particular settings and minimal skills required in a variety of settings are likely to yield more productive results. It is difficult to incorporate a valid assessment of adaptive behavior for a profoundly retarded child in a setting which provides intensive care and for a mildly retarded young adult living in a semi-independent apartment setting. Perhaps valid assessment of their respective abilities to adjust to their environments would include the same minimal core of skills, but would also include areas specific to their general level of functioning and environmental circumstances.

Factor Analytic Studies of Existing Adaptive Behavior Instruments

Measurements of adaptive behavior are supposedly measures of potential for an adaptive process. In assessing adaptive behavior it is not sufficient to measure a single skill such as the ability to use a spoon, but rather it is important to measure and analyze a pattern of many skills and characteristics of an individual. There are an infinite number of individual characteristics which could be

measured. In order to obtain meaningful results from an adaptive behavior measuring device, it is necessary to discover a manageable number of patterns or dimensions of behavior which will, in varying combinations, accurately describe any individual. One way of reducing the large number of possible assessment areas to manageable proportions is through the method of factor analysis. Once several factors have been identified, only those test items that accurately account for each factor need be retained in the test as a whole. A problem with factor analysis, however, is that the range of items and content included in the analysis affects results of the analysis. For example, manual dexterity would not appear as a factor in a self-help measuring device if the device contained no items pertaining to manual dexterity. A researcher's initial choice of items and domains to be included in an assessment instrument will have an influence upon determining factors which it appears to be measuring. Table 4 summarizes a number of factor analytic studies of adaptive behavior.

An early version of the Adaptive Behavior Scale contained 537 items grouped into 22 domains. This scale was administered to 919 institutionalized retarded adults (Nihira, 1969a) and 313 institutionalized retarded children (Nihira, 1969b). Behavior domain scores, not individual items, were factor analyzed. These studies produced three major factors. (1) Personal independence was composed of domains which measured basic skills ranging from self-help to money management and travel, and motivational factors

Table 4

Factor Analytic Studies of Adaptive Behavior

Study	Factors	Description
Nihira (1969a) Adaptive Behavior Scale with 919 institutionalized adults	personal independence	basic skills, including self-help, language and socialization; motivational elements
	social maladaptation	outwardly directed maladaptive or anti-social behavior
	intra maladaptation	inwardly directed stereotyped, withdrawn or eccentric behavior
Nihira (1969b) Adaptive Behavior Scale with 313 institutionalized children	personal independence social maladaptation personal maladaptation	daily living skills; motivational elements
Balthazar & English (1969) Central Wisconsin Scale with 288 severely retarded institutionalized people	inarticulate single words verbal skill responds to verbal instruction non-functional verbalization responds to simple instruction responds to directions non-verbal social responses social responses plays with staff plays with peers initiates interaction with staff nuisance behavior physical aggression aggression with peers passive response to aggression inappropriate contact with staff failure to respond to others stereotyped behavior	
Allen, Cortazzo & Adamo (1970) Adaptive Behavior Checklist with 712 institutionalized people	basic skills primary functions secondary functions	self-care skills receptive & expressive language social behavior, cooperation & work habits, skills needed for community living

Table 4 cont.

Study	Factors	Description
Guarnaccia (1976) Adaptive Behavior Scale Part I with 40 mildly retarded non-institutionalized adults	personal independence personal responsibility social responsibility productivity	self-help, cognitive & motivational elements follows through with own activities cooperation, participation & work habits
Lambert & Nicoll (1976) school version of Adaptive Behavior Scale with 2618 school children	functional autonomy social responsibility interpersonal adjustment intrapersonal adjustment	independent functioning, cognition & physical development volition & socialization
Nihira (1976) Adaptive Behavior Scale Part I with 3354 institutionalized children & adults	personal self-sufficiency personal social responsibility community self-sufficiency	self-care skills motivation & socialization skills necessary for living in the community; travel, money, domestic language
Nihira (1977) Adaptive Behavior Scale Part I with 1697 institutionalized children & adolescents	personal self-sufficiency personal-social responsibility community self-sufficiency	self-help skills neuromotor development speech development community living skills I community living skills II domestic skills (adolescents) academic skills (children)

(including domains called self-direction and responsibility). (2) Social maladaptation was composed of domains which reflected outwardly directed aggression or socially unacceptable behavior. (3) Personal maladaptation was composed of stereotyped, self-abusive, or eccentric behaviors which did not affect other people to an appreciable degree. A number of control variables, including age and sex differences, did not affect these factors. The first two factors accounted for 61 to 77 percent of the total test variance for adult and child groups. The third factor accounted for 6.4 percent of adult test variance and for 12.8 to 19.8 percent of the test variance for children's groups.

Balthazar and English (1969) factor analyzed data from 71 items of the social behavior section of the Central Wisconsin Scale of Adaptive Behavior (later to become the Balthazar Scales of Adaptive Behavior) which had been administered to 288 severely and profoundly retarded institutionalized individuals. Data were obtained through twelve 10-minute observation periods in which raw frequency scores were summed for each of 71 behaviors. The 18 factors listed in Table 4 were obtained.

The Adaptive Behavior Checklist, a checklist consisting of 72 items, was administered to 712 residents of a state institution for mentally retarded children and adults (Allen, Cortazzo, & Adamo, 1970). Factor analysis of items produced eight factors which were clustered into three major groups. The first major factor, called basic functions, consisted of skills essential for activities of

daily living at the most basic level--mainly eating, ambulation, and other self-help skills. A second factor, entitled primary functions, consisted of skills that contributed positively to the ability to function in public--largely reflected by language and conceptual abilities. The third factor, called secondary functions, consisted of skills such as housekeeping, selection of clothing, cooking, job performance, and a variety of motivation factors that made community living feasible. A slightly shortened form of the Adaptive Behavior Checklist was administered yearly for four years in a Florida institution (Schwartz & Allen, 1974). Generally, slow but steady growth of individual abilities was shown. Separate analysis of these data (Schwartz, Allen, & Cortazzo, 1974) revealed seven factors distributed in the same three functional areas found in the earlier study (Allen et al., 1970).

The Adaptive Behavior Scale has recently been analyzed by several investigators. Guarnaccia (1976) applied Part I (the adaptive behavior section) of the Adaptive Behavior Scale to 40 mentally retarded adults, living at home or in the community, who were trainees at a vocational training center. Four factors were isolated. Personal independence related to self-help, cognitive and motivational skills. Personal responsibility related to the ability and willingness to meet specific obligations and expectations. Productivity reflected physical development and occupational skills. Social responsibility related to work habits, consideration for others, cooperativeness, and participation in group activities.

Lambert and Nicoll (1976) administered a slightly modified school version of the Adaptive Behavior Scale to 2,618 California school children from special and regular classrooms. Their analysis revealed four factors. Functional autonomy reflected qualities of adaptive behavior characterized by independent functioning supported by cognitive and physical development. Social responsibility was defined by domains reflecting self-direction, responsibility, and socialization. Interpersonal adjustment and intrapersonal adjustment were found to be factors related to inwardly and outwardly directed maladaptive behavior. All four factors appeared for children of each sex, ethnic and socioeconomic status, age, and classroom placement investigated.

Nihira (1976) carried out a reanalysis of the Adaptive Behavior Scale, Part I. He believed that his earlier analysis had missed some inter-related factors because of the statistical treatment of the data. This time the Adaptive Behavior Scale was administered to 3,354 institutionalized persons of varying ages and degrees of retardation. Data analysis was based upon 25 subdomains of Part I of the scale instead of the 10 larger domains used in 1969 (Nihira, 1969a; 1969b). Three factors were derived. Factor one, called personal self-sufficiency, was defined primarily by variables in the area of self-help and motor development. A second factor, personal-social responsibility, which existed for age groups over 10 years old, was defined primarily by variables regarding motivation, socialization, vocational activity, and personal appearance.

Nihira (1976) cited three other reports (Halverson & Waldrop, 1976; Lambert & Nicoll, 1976; Ross, Lacey, & Parton, 1965) which reported similar factors centering around motivation and autonomy. The third factor was called community self-sufficiency. This factor emerged across age groups older than 10 years and was defined primarily by variables labeled travel, general independent functioning, money handling and budgeting, shopping, and language expression and comprehension. Analysis by age level and degree of retardation revealed that as retarded individuals increase in age, they showed progressive mastery of items contained in each factor, with changes in personal self-sufficiency being most important at younger ages and community self-sufficiency showing the most growth in older individuals.

In search of factors even more basic than those obtained from this analysis of 25 subdomains, Nihira (1977) conducted a factor analysis of the 66 item scores of the Adaptive Behavior Scale, Part I. Seven hundred and fifty institutionalized children and 947 institutionalized adolescents of all levels of retardation were sampled. Nihira identified the nine factors listed in Table 4, which he grouped under the three general dimensions identified in his 1976 study. Certain items that had previously been subsumed under independent functioning (e.g., eating in public), now appeared under factors called community living skills.

There have been many other factor analytic studies carried out on the behavior of normal children, the maladaptive behavior of

normal children, and the behavior of mentally ill children and adults. For the most part, these studies identified factors which are consistent with those discussed here. To summarize, each factor analytic study that included maladaptive behaviors identified two factors: outwardly directed maladaptive behaviors, which were offensive to or directed toward other individuals (such as aggression), and inwardly directed behaviors, such as withdrawal, eccentric habits, or stereotypic actions. There appear to be four major factors defining adaptive behavior:

1. Basic skills for daily living included physical ability, self-help skills, language skills, and certain cognitive abilities.

2. Socialization included aspects of interpersonal relations and sometimes language ability.

3. Community self-sufficiency included skills related to work, travel, time, money, housekeeping, and other abilities associated with getting along in a community situation.

4. Motivation, initiative, and responsibility are described as the ability and willingness to initiate and independently perform acquired abilities. Although none of the studies reviewed found a factor called motivation per se, it appeared as a prominent feature somewhere in every investigation. Nihira (1969a, 1969b) identified motivation as a major element of personal independence, and most other investigators found it to be a major contributor to aspects of socialization.

Varying the environmental context has a direct influence on the adaptation of behavior, of course, and the results of factor analytic studies, as mentioned above, are determined to a large extent by the context in which the behavior occurs. The recent appearance of a community adjustment factor is not surprising if

ISSUES RELATING TO THE ADAPTIVE BEHAVIOR CONCEPT

Adaptive Behavior and Measured Intelligence

Adaptive behavior scales have been used because of widely recognized limitations of intelligence tests in accounting for differences among mentally retarded people. Robinson and Robinson (1976) in discussing various definitions of intelligence, note that most viewed intelligence as the ability to learn, understand, or deal with new situations and information. Heber (1961) stated that:

> Since the behaviors sampled by current general intelligence tests are behaviors which contribute to total adaptations, level of measured intelligence is related to level of adaptive behavior. However, since items on our present intelligence tests do not adequately sample the full range of behaviors comprising total adaptation, the correlation is moderate with frequent discrepancies which necessitate the inclusion of the two dimensions in the classification. (p. 76)

Many investigators have examined the relationship between measured intelligence and measures of adaptive behavior. Leland et al. (1967), reporting on several studies of institutionalized retarded people, found correlations ranging from .58 to .95 between intelligence test scores and independent assignment to one of the five adaptive behavior levels described in the AAMD terminology and classification manual. Additional data, summarized in Table 5, indicate correlations ranging from .38 to .90 between the Vineland Social Maturity Scale and intelligence test scores from the Stanford Binet. Measures of self help skills, language abilities, and a variety of social behaviors measured by adaptive behavior scales

Table 5

Summary of Correlative Studies of IQ and Adaptive Behavior

	Vineland Social Maturity Scale	Stanford Binet	Unspecified IQ Measure	Population and Study
Vineland Social Maturity Scale		.82		moderately retarded institutionalized children (Congdon, 1969)
		.83		children (Doll, 1953)
		.80		14-20 year olds (Doll, 1953)
		.83		adults (Doll, 1953)
		.68		institutionalized mentally retarded people (Doll & McKay, 1937)
		.50		special education class children (Doll & McKay, 1937)
		.38		first grade students (Louttit & Watson, 1941)
		.72		delinquent adolescents (Springer, 1941)
		.90		normal 10-11 year olds (Wilson, 1939)
Cain-Levine	.77	.81		institutionalized moderately retarded children (Congdon, 1969)
Adaptive Behavior Checklist (4 domains)			.46-.69	institutionalized mentally retarded people (Schwartz & Allen, 1974)
Adaptive Behavior Scale (Part I)			.75	institutionalized mentally retarded children (Malone & Christian, 1974)
Central Wisconsin Scales (Social)			.59	institutionalized severely retarded people (Balthazar & Stevens, 1969)
(Self-help)			.63	
Balthazar Scales II (selected social items)	.34		.40	institutionalized severely retarded people (Balthazar & Phillips, 1976)

correlated .50 to .85 with intelligence test scores (Balthazar & Phillips, 1976; Balthazar & Stevens, 1969; Congdon, 1969; Malone & Christian, 1975; Nihira, 1976; Schwartz & Allen, 1974).

It is apparent that a moderate to strong relationship exists between intelligence test scores and measures of adaptive behavior. Both intelligence and adaptive behavior scores have frequently been used as predictive measures for a variety of independent criteria. Johnson (1970) found that IQ and the social quotient of the Vineland Social Maturity Scales were equally effective in predicting a variety of adaptive and maladaptive behaviors in a sample of over 7000 institutionalized retarded people. Combining the two scores did not increase predictive efficiency.

Practices involving the movement of retarded people from institutions back into the community have focused attention on the issue of the retarded person's adjustment to the community environment. Intelligence test scores have not generally been found to be correlated with the likelihood for success in the community. In a comprehensive review of the literature pertaining to community adjustment of retarded people, Windle (1962) concluded that intelligence was highly related to the likelihood of release from institutions, but it was not found to be a predictor of success in the community after release. Rosen, Floor, and Baxter (1974) found that neither IQ nor academic achievement was related to a measure of community adjustment for 50 previously institutionalized mildly retarded persons. McCarver and Craig (1974) reported that about half of the

33 studies they reviewed which included IQ as a variable found no relationship between IQ and community success, and one study even found a negative relationship.

Bell (1976) suggested the possibility that previous researchers have failed to find IQ to be related to community success because their samples included a relatively narrow range of IQ scores. Selecting a rather heterogeneous sample, she sent questionnaires to 503 previously institutionalized individuals and found that although IQ did not predict success per se, it was significantly related to community lifestyle, to the amount of community support services utilized (more services were utilized by higher IQ groups), and to type of living arrangement (more of the lower IQ group lived at home).

Community adjustment and community success are terms which have not as yet been adequately defined. They are interactive processes relating the characteristics of individuals involved with the characteristics of the environments into which they move. In the preceding discussion about IQ and community adjustment and in the following discussion about adaptive behavior it is necessary to be aware of the fact that community placement is not a random process. Considerable efforts are usually made to match retarded individuals with community placements having enough support services to assure success. Therefore, research studies reflect this fact, and an investigator's inability to identify predictors of community adjustment should not be accepted as evidence that intelligence,

adaptive behavior level, and any number of other factors are not critically related to characteristics of the relationship between a retarded person and his community.

Adaptive Behavior as a Predictor of Community Adjustment

Adaptive behavior is defined as "the effectiveness or degree with which the individual meets the standards of personal independence and social responsibility expected of his age and cultural group" (Grossman, 1973, p. 11). The specific behaviors sampled by each adaptive behavior measuring device are presumably keyed to success in the surrounding environment, especially in the community.

Unfortunately, no studies were found which indicated that existing measures of adaptive behavior were any more effective at predicting community adjustment than were measures of intelligence. Eagle (1967) reviewed 36 follow-up studies completed between 1941 and 1965 of retarded persons who had previously been released from institutions. He found that reasons given in the literature for institutionalized retarded people's failure to succeed in community settings related to anti-social actions, undesirable personal conduct, personality problems, unsatisfactory work habits, mental and physical health problems, escape, voluntary return to the institution, adverse environmental factors, and transfer to other facilities. Maney, Pace, and Morrison (1964) found four factors

which seemed to lead to institutionalization: conspicuous behavior problems outside the home, psychic alienation (withdrawal), family adjustment problems (conflict with parents or parental inadequacy), and delinquency (interpersonal or property). In terms of adaptive behavior, an individual's absolute ability level did not appear to be as important in the community as other personal and social problems.

Adaptive behavior is measured to assist in constructing programs for individuals and groups and for matching individuals and groups to programs in school, work training, residential living, and other settings. In this latter sense, adaptive behavior measures have been found to have considerable concurrent validity. Malone and Christian (1974) found that measured adaptive behavior effectively discriminated among persons placed in one of four of an institution's special education programs (developmental, primary, intermediate I, and intermediate II) in which 126 mentally retarded students were placed. The placement decisions themselves had been made by teachers and other professionals based on academic functioning, IQ, age, and a subjective behavioral assessment. Adaptive behavior was better than IQ and achievement test scores in discriminating among these classroom placements. Likewise, Lambert, Windmiller, Cole, and Figueroa (1975) found that the Adaptive Behavior Scale discriminated among EMR, TMR, learning disabled, and regular classroom placements of 2,600 elementary school children in California.

Classroom settings are highly structured and are usually designed to meet the needs of students. Therefore, it is not surprising that classroom placement correlates with measures of adaptive behavior. However, in taking a broader community perspective, one clear generalization from the research literature is that, based on assessment of the characteristics of retarded individuals involved, it is almost impossible to predict who will adjust successfully to demands of community living (Cobb, 1972; Eagle, 1967; Windle, 1962).

Although adaptive behavior is a concept different from that of intelligence, it has not been shown to be more closely related to aspects of community adjustment. This is surprising because definitions of adaptive behavior stress the degree to which the behavior of an individual matches or adapts to that which would be expected of any other person of similar age and cultural group. Adaptation implies a dynamic process. Yet adaptive behavior measures sample static pieces of learned behavior and, although they appear to be sensitive to changes due to learning, they do not seem to be very predictive of adaptive processes.

There are at least two possible explanations for the limited predictive power of existing adaptive behavior measures. First, it is possible that adaptive behavior is not an element critical for community success. Second, it is possible that various adaptive behavior measures do not indeed measure adaptive behavior.

It has already been observed that ideally school classrooms are structured to fit the needs of students in order to maximize their chances of success. It is probable that selection of a community placement for a retarded individual aims to provide whatever support services he/she needs and that community success depends as much upon the characteristics of these services as upon the characteristics of the retarded person himself. Bell's (1976) study, mentioned above, pointed out that community lifestyle of previously institutionalized retarded individuals is related to IQ. Presumably lifestyle, which incorporates the type of support services used, is also related to level of adaptive behavior. Bell found that many people with IQ's below 50 were living at home with parents. This greater security no doubt aided in their "success" in the community. In these cases it may have been the placement decision which was critical rather than the individual's measured adaptive behavior.

In a follow-up study of 75 previously institutionalized persons who had been living in the community for at least one year, Scheerenberger and Felsenthal (1976) concluded that:

> In essence, it would appear that if a retarded person is personable and reasonably well motivated, he or she will be well received in an alternative community living situation, regardless of level of retardation or the occurrence of multiple handicapping conditions. Various problems which would be associated directly with reduced intellectual functioning do not appear to be of significance. (p. 38)

Problems associated with limited abilities can at least partially be compensated for by carefully structuring the environ-

ment. Nevertheless there are limits to what the "community" can or is willing to offer, at least at this time. The very concept of adaptive behavior stresses the two-way nature of community adjustment, and the fact that individuals must also adapt to social expectations. It is possible that part of the inability of adaptive behavior measures to predict community adjustment is related to the fact that they seem to be measuring a sample of specific behaviors in specific situations rather than the ability to change, or adapt to new situations, as the term adaptive behavior would imply. The ability to conform to social norms must be related to dynamic factors such as personality and motivation as well as to acquired skills necessary to perform specific tasks.

PERSONALITY FACTORS AND ADAPTIVE BEHAVIOR

Motivation and Initiative

Intelligence is often defined as the capacity to learn, measured adaptive behavior as a reflection of the skills an individual has learned, and motivation or initiative as the willingness to apply these skills in various settings. Cook (1966) reviewed a number of psychological theories regarding the cause of various human behaviors. Most theorists have proposed variations on one theme, which is that an individual acts on the basis of the probability that a certain behavior will lead to a certain desired result, and the value (positive or negative) that the individual places on that result. Probability of results multiplied by reinforcement value equals the probability that a certain behavior will occur. It is assumed that people's motives are to maximize utility in behavior. Cook hypothesized that mentally retarded people, however, may have atypical or inadequate utility structure, possibly preferring concrete gratification to longer term intangible rewards, or may have increased or decreased needs for certain types of reinforcement. Edward Zigler, for example, has pointed out that institutionalized individuals prefer increased social reinforcement in comparison to non-institutionalized people (cf. Zigler & Balla, 1977).

Haywood (1968) has specifically investigated motivational dimensions of personality. He identified types of individuals who

were either predominantly extrinsically or intrinsically motivated. Intrinsically motivated retarded individuals performed better on a hole punching task when the incentive was merely the opportunity to do another task, whereas extrinsically motivated individuals worked harder for a monetary reward (Haywood, 1967). Intrinsically motivated individuals tended to be more persistent on tasks (Haywood & Weaver, 1967), to perform better on standardized achievement tests (Haywood, 1968), and to be found much more often in the community than in institutions (Haywood & Weaver, 1967). This latter observation is very pertinent to this discussion. Haywood and Weaver (1967) had a great deal of difficulty locating institutionalized retarded people who were intrinsically motivated. Some studies have found what appear to be positive motivational effects of institutionalization (cf. Heal, Sigelman, & Switzky, in press). Nevertheless, these facts have implications for community placement, which places a high premium on initiative (intrinsic motivation). Motivation, it would seem, is a primary determinant of how skills will be utilized or whether they will be utilized at all in settings that permit independent actions.

Many adaptive behavior assessment devices include items related to motivation or initiative, but they receive relatively minor emphasis. Nearly every factor analytic study reviewed here included motivation as a component. In referring to <u>personal independence</u>, Nihira (1969a) commented that "the factor clearly involves both skills and abilities as well as the presence or lack of

motivational force toward the maintenance of personal independence" (p. 847). Paradoxically, the same researchers (Nihira, Foster, & Spencer, 1968) purposely avoided giving extra weight to motivational elements. They pointed out that the aim of developing their scale (the AAMD Adaptive Behavior Scale) was to sample a broad range of behavior. Although the domain labeled self-direction was more effective than others in discriminating among independently determined levels of adaptive behavior, it was also moderately correlated with IQ. For this reason they purposely avoided a proliferation of motivation centered items in an attempt both to design a measure of behavior independent of IQ and to sample a wide range of behavior.

In other cases, the motivational sections of assessment devices are least correlated with intelligence test measures. The Cain-Levine Social Competency Scale subsection on initiative correlated .09 for males and .11 for females with measured intelligence test scores, compared with the total score correlation with measured intelligence of .22 for males and .25 for females. These low correlations could be related to the fact that children with relatively limited ranges of ability were sampled, that motivation is independent of IQ, or that the construct of motivation is not being adequately measured. Self-direction was found to be the least reliable domain of Part I of the Adaptive Behavior Scale (Fogelman, 1974), but was moderately reliable in the Cain-Levine Social Competency Scale (Cain et al., 1963).

Motivation may be a highly distinctive characteristic. Floor and Rosen (1975) investigated a phenomenon they called "helplessness," defined as the inability to take effective action in a problem situation. This work followed their earlier unsuccessful attempts (Rosen, Floor, & Baxter, 1972; Rosen, Kivitz, Clark, & Floor, 1969) to predict post-institutional adjustment of mentally retarded adults on the basis of any of 28 demographic, psychometric, or behavioral rating variables. The work on helplessness arose as an attempt to identify relevant factors that had not been identified earlier. In this study, both institutionalized and non-institutionalized retarded people exhibited significantly more signs of helplessness than did non-retarded control subjects. It was felt that these results supported the hypothesis that helplessness is a meaningful personality dimension among retarded persons and could be objectively measured.

Other Personality Variables

Windle (1962) pointed out that "personality" is often used as a catch-all term to label an adjustment problem which cannot be explained on other bases such as IQ, education, or physical skills. Nevertheless, personality factors, especially as they pertain to maladaptive behavior, are unequivocally important in conforming to social norms.

Lambert & Nicoll (1976) cited a mental health survey of Los Angeles County which reported on the mental health status of over 500,000 public school children. Twenty-nine percent of the special education population (both EMR and TMR classes) were judged to have "severe psychological disturbances." Overall 55 percent were judged by their teachers to have serious to moderate behavior problems (California State Department of Mental Hygiene, 1960).

Lemkau, Tietze, and Cooper (1942) explored the relationship between mental retardation and psychiatric disorders. Of almost 700 retarded persons located in an epidemiological study, 9.7 percent were psychotic or had psychotic traits, 6.6 percent were classified as adult neurotics and 24.8 percent had other forms of personality disorder. Overall, more than 40 percent of these retarded individuals had a psychiatric problem (from Conley, 1973). Information collected by the National Institute on Mental Health on over 9000 first admissions to public institutions for retarded persons in 1968 indicated that 16 percent had psychiatric impairments (Conley, 1973).

Psychiatric problems and psychiatric impairment are terms that generally have been used to describe factors related to personality traits and maladaptive behavior. Some adaptive behavior scales assess maladaptive behavior and most contain items related to assessing social interaction. Foster and Nihira (1969) administered the Adaptive Behavior Scale to 260 psychiatrically impaired institutionalized adult retarded people. Several domains

of the maladaptive behavior section of the scale differentiated significantly between the more severely retarded psychiatrically impaired and non-impaired groups. However, no domain differentiated among the higher level (mean IQ 50 to 55) psychiatric groups.

Sali and Amir (1971), in evaluating work success of moderately and severely mentally retarded people, found that performance and output variables were more related to personality characteristics than to IQ scores or to specific abilities. The personality characteristics they investigated included perseverance, concentration, readiness, responsibility, and precision. Although their findings are not clearly presented, it seems that personality charcteristics were more important than either specific work related skills or IQ scores in predicting job performance and productivity.

Few conclusions can be drawn from this information. A significant number of retarded people have personality or behavior problems. Personality is an important criterion in the evaluation of institutionalized persons for possible release (Shafter, 1954). Once placed in a community facility that is appropriate for their ability level, moreover, personality factors appear important for successful adjustment. Motivation in particular has been found to be a factor on which mentally retarded people vary individually and possibly as a group. At this time, however, personality factors are still poorly understood and difficult to measure.

SUMMARY AND CONCLUSIONS

There seem to be two primary approaches to designing adaptive behavior measures. The first is simply to find any measure of behavior that is independent of IQ, on the grounds that IQ alone is an inadequate measure of human behavior. The second and more meaningful reason for developing adaptive behavior scales is for their usefulness in programming and planning for mentally retarded people. Today there are literally hundreds of adaptive behavior checklists and evaluation items covering virtually every skill a retarded person might be expected to possess.

One principal source of confusion in this area is the implicit conflict between the need to assess individual functioning for the purposes of planning specific training programs and the need to describe general behavioral skills of persons in the interest of describing population characteristics and general results of programs. Unfortunately, many adaptive behavior scales are designed to achieve both ends, often failing to satisfy either of these two legitimate needs. Many assessment devices are laborious to administer and the results are often confusing to interpret. Results are often presented in the form of raw scores in each of several behavior areas. However, since none of these scales have uniform intervals, it is impossible to say any more than that an individual has learned something if his score has improved. Some assessment devices permit performance to be converted to

standard scores, giving the added advantage of being able to identify behavior areas which are relatively strong or relatively weak for any given individual. However, when it comes to actually determining objectives for teaching, it is necessary to refer to individual test items to determine where to begin.

Attempts to measure the process through which an individual adapts to the expectations of new environments have not been successful. It is likely that what has been measured is achievement, or learned abilities to perform specific tasks, not adaptation. Adaptive behavior is not an entity--it is a process which reflects an individual's ability to adjust to the demands of new situations and the insight to know when, where, and how to perform. A skill such as undressing is only adaptive in a limited number of situations (e.g., not in public).

Although in the past the term "adaptive behavior" has been equated with the concept of an adjustment process of the ability to adjust, there are two distinct ideas here. Any predictive study, or even an accurate descriptive one, must measure this adjustment process in addition to adaptive behavior as the term has been used in the past. It would appear from the literature that successful adjustment to a living environment does not depend entirely upon absolute ability level, either in terms of adaptive behavior or in terms of an intelligence quotient. Balthazar and Phillips (1976) present a similar hypothesis.

Community adjustment is no doubt at least partially related to some factors which are independent of an individual's abilities, e.g., the quality of available community support services or the characteristics of staff members in community facilities. A retarded individual may be rejected because of behavior problems or psychiatric characteristics which are socially unacceptable. Or, a person may not succeed in the community if he lacks the ability or desire to apply the skills he possesses--i.e., if he lacks initiative or motivation.

Motivation is an important determinant of the degree to which an individual will adaptively use the skills he or she has learned. The ability to take a bus to work would not contribute to community success for a person who shows no desire to leave the house.

Adaptive behavior scales have been developed to measure learned behaviors which are considered important in relation to expectations placed upon an individual by the surrounding environment. A great variety of behaviors are being assessed by available instruments, and many of these instruments provide a useful basis from which to develop individualized training plans. To a lesser extent, adaptive behavior scores are useful in assigning individuals to existing programs such as schools or work training settings. However, the predictive validity of adaptive behavior scales has not been impressive. In order to predict the degree to which an individual will succeed in a new environment, the concept of

adaptive behavior must be expanded to incorporate a measure of the manner in which he or she spontaneously responds to changes in environmental demands. This issue leads to examination of personality and motivational factors which are not easily measurable in behavioral terms. Motivation appears as a prominent feature in each factor analytic study of adaptive behavior, and many existing scales have items pertaining to initiative, persistence, responsibility, and attention. Although many of these items are meaningful, they should perhaps be given more weight and stated in more objective terms. Future research on adaptive behavior should address means of integrating the measurement of skills and abilities with measures of the likelihood that they will be applied in everyday settings.

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