A FACTOR-ANALYTIC STUDY OF ADAPTIVE BEHAVIOR AND INTELLECTUAL FUNCTIONING IN LEARNING DISABLED CHILDREN

DISSERTATION

Presented to the Graduate Council of North Texas State University in Partial Fulfillment of the Requirements For the Degree of

DOCTOR OF PHILOSOPHY

By

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The problem of this study was to determine the relationship between measures of intellectual functioning and adaptive behavior among learning disabled children.

The purposes of this study were to analyze the factorial structure of intellectual functioning and adaptive behavior among learning disabled (LD) children and to determine whether or not these constructs were significantly interrelated for this population. Data for the study were obtained by the use of the Wechsler Intelligence Scale for Children - Revised (WISC-R) and Zeitlin's Coping Inventory (CI). To facilitate the investigation, four research questions were posed.

The population for the study consisted of 160 LD students from Cooke County, Texas. Scaled scores from the WISC-R and CI were analyzed on 48 girls and 112 boys, ranging in age from 6-3 to 16-2 years.

Statistical treatment included separate factor analyses of WISC-R and CI scaled scores, the analysis by canonical correlation of data combined from both tests to investigate the possibility of significant interrelatedness, an analysis of combined test data for principal factors, and an exposition of central tendency measures from both tests.
The major conclusions of this study are as follows:

1. Factor analysis of WISC-R scaled scores for this population yielded three factors which were described as Verbal Comprehension, Perceptual Organization, and Freedom from Distractibility.

2. Factor analysis of the CI scaled scores showed it to be predominantly a single-factor test for this population.

3. Canonical correlation analysis of combined test data showed that factors underlying the WISC-R and CI were not significantly interrelated.

4. Principal-factor analysis of test data from the WISC-R and CI combined resulted in some alteration of factor loadings, but findings were generally consistent with separate analyses of the same data.

5. Measures of central tendency for this population for both measures were not found to be significantly different from those reported in the literature.

Implications and recommendations for future research were suggested.
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CHAPTER I

INTRODUCTION

In the past, school children referred for psychological evaluation were administered test batteries comprised of instruments designed to measure psychometric and edumetric status (1). With the passage of PL 94-142 (Education Act for All Handicapped Children, 1975), the assessment of adaptive behavior was mandated to ensure nonbiased pupil appraisal. Currently, federal, state, and local education agencies include the assessment of adaptive behavior as an important part of the evaluation and educational programming of all children being considered for special education services.

Adaptive behavior, both as a concept and as an integral though complex part of intellectual functioning, needs to be understood by those charged with its assessment. A comprehensive study of intelligence and adaptive behavior--how they are related and the degree of overlap which may occur in their evaluation--would be helpful in making decisions regarding the identification, classification, placement, and educational programming of children referred for assessment.
Statement of the Problem

The problem of this study was to determine what relationship exists between measures of intellectual functioning and adaptive behavior among learning disabled children.

Purposes of the Study

The purposes of this study were

1. To analyze the factorial structure of intellectual functioning of children classified as learning disabled;

2. To analyze the factorial structure of adaptive behavior among learning disabled children;

3. To display the interrelatedness of intellectual functioning and adaptive behavior among learning disabled children;

4. If intellectual functioning and adaptive behavior are shown to be interrelated, to determine the nature and significance of overlap between these constructs among learning disabled children.

Research Questions

To carry out the purposes of this study, answers to the following questions were sought.

1. What factors emerge from an analysis of the eleven subtest scores (excluding the Mazes subtest only) of the Wechsler Intelligence Scale for Children - Revised (12) (WISC-R) for a population of learning disabled children?
2. What factors emerge from an analysis of the six discrete scores obtained from teacher ratings on the Coping Inventory (CI) for a population of learning disabled children?

3. Are intellectual functioning (as measured by the WISC-R) and adaptive behavior (as measured by the CI) significantly interrelated among learning disabled children?

4. If the two constructs defined in 3, above are shown to be interrelated, what is the nature and significance of overlap in measurement variance between the WISC-R and CI among learning disabled children?

Background and Significance of the Study

Professionals with different areas of expertise have conceived of adaptive behavior in ways circumscribed by their particular fields of interest. Consequently, their definitions of what constitutes adaptive behavior tend to reflect this. There are at least two different approaches to the concept of adaptive behavior in current usage. The first springs from a movement on the part of the public to promote the idea of least restriction, i.e., each handicapped person should be afforded training in adaptive skills so that he may function as near the social norm as possible. The other approach is illustrated by efforts to ensure equal treatment for all children in public schools by the adoption of nonbiased assessment procedures. Seen from the latter
viewpoint, the measurement of adaptive behavior emphasizes the extent to which a child can cope with the social and cultural environments outside the school. Both of these concepts are treated by the same federal mandate, PL 94-142. The law which requires non-biased assessment for minority group children also requires the development of procedures for the least restrictive educational placement and for optimum training for mentally handicapped students.

Different theorists define adaptive behavior in ways which reflect the components they feel are most important. Mercer (7, p. 13) emphasizes the social aspect of adaptive behavior. She sees adaptive behavior as "an individual's ability to play ever more complex social roles in a progressively widening circle of social systems." Nihira (9, p. 215) implies that adaptive behavior is a wide-ranging concept applicable to the diagnosis of disabilities. He calls it "a composite of many aspects of behavior and a function of a wide range of specific abilities and disabilities." Robinson and Robinson combine the concept of fit to environmental demand with varying tasks during the developmental sequence.

Impairment in adaptive behavior ... may be reflected during infancy and early childhood mainly by impairment in maturation manifested by retarded development in sensory motor behavior, self-help skills, and language. During the school years, the predominant area of impairment is in learning the skills that are of special importance in the academic setting (10, pp. 615-616).
Leland, et al. (5, p. 14), emphasize the fit of the individual to environmental demands. Simplified, their definition states that the "... ability to adapt to environmental demand (is) represented by three behavioral formations: (1) Independent functioning, ... (2) Personal responsibility, ... (3) Social responsibility, ..." Leland (6, p. 25) also points out the very obvious relationship between adaptive behavior and intelligence. Individuals with higher levels of intellectual functioning learn to perform skills sooner, are able to assume greater personal responsibility, and have a high capacity for social adjustment. According to Coulter and Morrow (2, p. 116), the problem for the assessment professional is not the modification of traditional assessment; it is choosing how to define adaptive behavior and choosing a measure to define that hypothetical construct.

The present study was felt to be significant for the following reasons.

1. It would lead to increased precision in the description and assessment of both intellectual functioning and adaptive behavior among learning disabled children.

2. If a particular constellation of subtest scores on the WISC-R were shown to be significantly related to maladaptive coping skills as measured by the CI, low scores on these subtests could alert a practitioner to the need for assessing adaptive behavior in depth.
3. Use of the CI as an integral part of the comprehensive test batteries administered to children referred for assessment could help practitioners to

a. meet requirements of PL 94-142 for non-discriminatory assessment of adaptive behavior;

b. identify, classify, and place handicapped children;

c. write measureable goals and objectives in the Individual Educational Plan (IEP) to increase adaptive coping skills;

d. identify behaviors in all children that facilitate or interfere with learning;

e. develop strategies for teaching more adaptive behavior.

Rationale

Experience in teaching, testing, and observing children for more than a decade has led to the belief that there is a need to systematize the assessment of adaptive behavior among children referred for psychological evaluation in the public schools. A review of the relevant research indicates that adequate tests (4, 8) are listed by the Texas Education Agency (11, p. 24) to satisfy legal requirements with regard to the identification, classification, and placement of children referred
for evaluation because of suspected mental retardation. However, since the assessment of adaptive behavior is also required in the evaluation of children referred for other reasons (11, p. 18), a reliable test to be used for this purpose would facilitate this procedure. A study of the possible interrelatedness between intellectual functioning and adaptive behavior could lead to an increase in understanding of both of these constructs for those who must make educational decisions based to some extent on their measurement.

Definition of Terms

The following terms have restricted meaning and were defined as follows for this study.

1. 
LD child: A pupil identified by state and district criteria (11) for special education for learning disabilities and currently receiving special education through a resource teaching arrangement on a daily basis.

2. Adaptive behavior: The effectiveness with which individuals cope with the natural and social demands of their environments. For this study, it is defined by the six discrete scores obtained on the Coping Inventory (CI).

3. Practitioner: An individual certified in Texas to engage in pupil appraisal for purposes of identification/classification and intervention/educational programming in the public schools.
4. **Intellectual functioning**: A student's performance on the WISC-R.

5. **Psychological assessment**: The collection of data for use in making educational decisions. It includes the formal evaluation of intelligence, adaptive behavior, and academic achievement in addition to developmental, physical, emotional, behavioral, and social factors.

6. **Coping**: An active, adaptive process of using strategies to manage one's world.

7. **Adaptive coping behavior**: That which facilitates solutions and generates learning that can be applied to new situations.

8. **Maladaptive coping behavior**: That which does not generate a satisfying solution except for protecting an individual from the stress of the moment.

**Limitations**

This study was subject to the limitations recognized in the use of data derived from teachers' ratings of students. Even though teacher-completed rating scales show acceptably high psychometric features, such as inter-rater agreement and rating stability, and are recognized as valid when compared to other methods of assessing child behavior (3, p. 163), the possibility of respondent bias does exist. There are also some facets of adaptive behavior (e.g., behavior which occurs outside the school environment)
which were not addressed by this study.

Other limitations were those inherent in the use of factor analysis as a research tool. Although factor analysis is a mathematical procedure, it does involve considerable judgment and subjectivity. Differences of opinion arise as to the psychological meaning of factors. Each investigator chooses the method of organizing his data which seems appropriate to him. This sometimes results in variation among studies of similar variables.

Basic Assumptions

It was assumed that teacher-raters followed standard procedures, as instructed, in rating their students' behavior. It was further assumed that the use of subjects from several schools with different teachers would balance the effect of any single teacher or environment on the assessment of adaptive behavior.

Procedures for Collecting Data

The population selected for this study consisted of 160 students drawn from the independent school districts which comprise the Cooke County Special Education Cooperative of North Central Texas. All students designated as LD by a multidisciplinary team and receiving daily instruction in a resource room during the first semester of 1981-1982 were considered for the study. Only those students outside the WISC-R age range (6-0-0/16-11-30) (12, p. 17) or whose intellectual functioning was assessed with a different
test were excluded from the sample. All subjects had been administered the WISC-R by the same examiner prior to admission into special education classes. Individual subtest scores from the WISC-R (excluding the Mazes subtest only) were collected from the 160 LD students and tabulated for analysis.

All resource teachers with students participating in this study were instructed in rating procedures as specified in Zeitlin's CI Test Manual (13, p. 24). Each child was rated on the CI by his/her resource teacher during the fall semester of 1981-1982. Inventories were collected, scored, and tabulated for analysis.

Procedures for Analyzing Data

The data from the WISC-R and CI were programmed into the computer for processing. The WISC-R and CI were first factored separately. Data were then combined for analysis by canonical correlation to investigate the possibility of interrelatedness. Additional statistical treatment was carried out utilizing information obtained from the various analyses. A detailed description of the foregoing procedures for the collection and analysis of data is found in Chapter III. Results and discussion of findings are presented in tabular form and are found in Chapter IV.
CHAPTER BIBLIOGRAPHY


CHAPTER II

REVIEW OF RELATED RESEARCH

The WISC-R has been researched extensively and intensely since its publication in 1974. It is doubtful that any other intelligence measure has been subjected to a like barrage of investigation in so short a time. Even the research has been researched. Between 1974 and 1980, 113 articles or papers were published on the WISC-R (38). These included 11 articles in two issues of Psychology in the Schools: October, 1977, and April, 1978. Subjects explored were the assessment of deaf children, prediction of achievement, short forms, WISC-WISC-R differences, subtest patterns for exceptional populations, and factor analytic studies (21). There are also numerous correlational studies involving the WISC-R and other measures of intelligence and achievement (1, 15, 33, 39, 50). Results of correlational studies are generally well known and have been reported in depth in Sattler (43).

A comprehensive report of all the research relating to the WISC-R would be a monumental undertaking and is beyond the scope of the present study. The following review is selective in that it is directed primarily toward two goals. The first is to bring together recent,
representative data related to the use of WISC-R pattern analysis in the classification, description, and remediation of learning disabilities in children. The second is to explore research reported on the measurement of adaptive behavior.

Pattern Analysis of the WISC-R

Research on the use of WISC-R pattern analysis in the classification of children referred for psychological evaluation has resulted in conflicting views concerning its utility in diagnosis. Studies have been made on Wechsler's standardization sample, various minority groups, and many different exceptional populations (9, 10, 17, 19, 45, 49). The variety of designs used in these studies constitutes a continuum all the way from descriptive reporting of phenomena to the highest degree of statistical sophistication and computer-precise sampling techniques. Lack of operationalism in the definition of populations and use of different criteria for inclusion or exclusion from the groups studied have contributed to some disagreement in interpretation of reported data (9, 11, 31, 32, 44, 53, 55, 56). In some cases results obtained from statistical treatment may have been unduly conservative due to grouping methods employed (17, 49). The fact that a child was referred for evaluation because of suspected developmental disability or behavioral/emotional problems would seem to preclude his inclusion in a group designated as "nonproblem" or "none."
Much research has also been directed toward the achievement of an empirical basis for categorization of WISC-R subtests into meaningful groups by profile analysis. Bannatyne (3) pioneered the possibility of identifying children with genetic dyslexia by categorizing the WISC subtests into Spatial, Conceptual, and Sequential groups. These categories (derived by obtaining the mean of the summed scaled scores within each group) were used to examine significant differences in the abilities measured by their respective subtests for the purpose of making remedial recommendations. Composition of the original categories was as follows: Spatial--Object Assembly, Block Design, and Picture Completion; Conceptual--Comprehension, Similarities, and Vocabulary; and Sequential--Digit Span, Coding, and Picture Arrangement. Bannatyne (3, 5) reported that children with genetic dyslexia scored highest in the Spatial category, intermediate in the Conceptual category, and lowest in the Sequential category; i.e., Spatial > Conceptual > Sequential. Rugel's (41) factor analytic studies supported Bannatyne's ordering of categories. Since Rugel's population of disabled readers included children with dyslexia, minimal brain dysfunction, emotional disturbance, and cultural deprivation, application of Bannatyne's model was widened to include these clinical groups. As a result of Rugel's work, Bannatyne dropped the Picture Arrangement subtest from the Sequential category and replaced it with the Arithmetic subtest. In addition, he added the Acquired Knowledge category.
which included the Information, Arithmetic, and Vocabulary subtests (51).

A study by Smith, et al. (46), based on Bannatyne's re-categorized model, included the Acquired Knowledge category. The Digit Span and Mazes subtests, however, were excluded from their research. Results of their study of 208 learning disabled (LD) children supported Bannatyne's model. They found the mean Spatial score was significantly greater than the mean Conceptual score, which, in turn, exceeded the Sequential and Acquired Knowledge scores; i.e., Spatial > Conceptual > Sequential > Acquired Knowledge.

Vance and Singer (51) attempted to replicate the Smith, et al., study using all 12 of the WISC-R subtests. They included a fifth category, Distractibility, which included Arithmetic, Digit Span, Coding, and Mazes scores. Their results were interpreted as supportive of Bannatyne to some extent. They concluded, along with Rugel (41) and Kaufman (21), that LD children often experience more difficulty with Arithmetic, Coding, and Digit Span subtests than do other groups.

Johnston (18) grouped the subtest scores of 103 LD children as advocated by Bannatyne (4) and then as advocated by Kaufman (19). The Kaufman categorization yielded the expected statistically significant pattern of Perceptual Organization (Performance Scale mean) > Verbal Comprehension (Verbal Scale mean) > Freedom from Distractibility (Arithmetic, Digit Span, and Coding mean). On the other hand, the statistically-
significant relationship found in the study of Bannatyne's recategorization by Smith, et al. (46), did not hold true for Johnston's group. Instead of Spatial > Conceptual > Sequential, a pattern of Conceptual > Spatial > Sequential emerged with statistically-significant differences obtained between Conceptual and Sequential and Spatial and Sequential categories.

Kaufman (19, 20, 21) has probably researched the WISC-R more thoroughly than any other individual. In a factor-analytic study (20, p. 21) of data from the WISC-R standardization sample at 11 age levels between six and one-half years and 16 and one-half years, he identified three factors and tabulated them as follows.

<table>
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<th>Perceptual Organization (PO)</th>
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<td>Vocabulary</td>
<td>Block Design</td>
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<td>Comprehension</td>
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Kaufman (20, p. 22) reports that the results of three different methods of factor analysis for each age group yielded the preceding pattern with striking consistency, thereby reinforcing the robustness and meaningfulness of the three factors for all youngsters within the six/sixteen-year age range. In analyses of the standardization data that Kaufman conducted for separate samples of males and females, and also for discrete samples of blacks and whites, the identical three factors were isolated
for both sexes and racial groups. Others (37, 45, 47, 54) have confirmed Kaufman's findings for groups classified as mentally retarded, LD, and emotionally impaired. Although one study (37) reported less stable loadings on the FD factor, others (47, 52) found that the FD factor was consistently lower for LD groups. Kaufman (20, p. 22) states that in hierarchical factor analysis of the WISC-R, the emergence of only two factors is a result of the methodology used. Others (47, p. 166) have pointed out that "the results of factor analytic studies are very much dependent upon the factor model selected, as well as the criteria used to control factorization."

Kaufman (20, Chapter 3) suggests some guidelines for knowing when to interpret the FD factor in individual test profile analysis. He urges an eclectic approach with the model chosen for interpretation being dependent on other data collected and clinical observations. A low FD score may be due to distractibility, but it may also indicate other problems. For example, Guilford's structure-of-intellect model was used by Meeker (28, 29) to show that low Arithmetic, Digit Span, and Coding scores could indicate a deficit in the ability to deal with symbolic material. Lutey (25) pinpoints Arithmetic, Digit Span, and Coding as the subtests most vulnerable to an anxiety state. Kaufman (20, p. 70) states that though the FD factor is the smallest of the three factors (in terms of the percentage of variance accounted for), there are some children for whom the third factor holds the key to competent WISC-R
interpretation. He also notes that it is the only factor that may correspond to a behavioral rather than an intellective variable.

It is widely acknowledged that children with learning disabilities commonly show emotional and behavioral problems as well as difficulties in attention, perception, cognition, and school achievement (8, p. 163). In a study which examined the behavior of a group of LD children, Cullian, et al. (8), found that LD boys and girls showed significantly greater maladjustment than normal boys and girls. Other researchers (37) found that the behavior problems of LD pupils were factorially summarized by three dimensions: Conduct Disorder, Personality Problem, and Inadequacy-Immaturity. Cullen, et al. (7, p. 288), point out that affective variables have potential for suppressing the effects of remedial assistance at the verbal-cognitive level and that this suppression effect can be accentuated if its impact on school learning is not acknowledged in the development of remedial strategies.

Lambert and Urbanski (23, p. 59) concluded from their studies of the behavioral profiles of children with different levels of achievement that there are three basic dimensions underlying children's behavior. They defined them as (a) adaptation, a learning problems dimension; (b) interpersonal, a social interaction dimension; and (c) intrapersonal, a personal adjustment dimension.
Assessment of Adaptive Behavior

Although the assessment of adaptive behavior has been mandated in making decisions regarding the designation of a child as mentally retarded, the issue of adaptive behavior assessment in other groups of children referred for evaluation has been left up to the discretion of the professional involved. Yet, if a child's behavior patterns are affecting his achievement, this problem needs to be addressed. Coulter and Morrow (6, p. 105) concluded on the basis of results obtained from a state-wide survey of appraisal personnel in Texas' public schools that misunderstanding of the concept of adaptive behavior is widespread among practitioners. Reportedly, practitioners tended to measure student adaptation within the academic setting rather than outside of it; e.g., in the home or larger community. Coulter and Morrow state that it is the assessment of behavior which occurs outside the school which underlies the entire concept of the measurement of adaptive behavior. Most practitioners know this concept and readily interpret it whenever a designation of mental retardation is the concern of the referral. In most cases, however, mental retardation is not the major concern. Sometimes, adaptive behavior in the school room is. Consequently, in responding to the Coulter and Morrow survey, practitioners may have been reflecting a need for more systematic ways of assessing adaptive/maladaptive behaviors in an academic setting. Without adequate assessment, it is not likely that adaptive skills
will be addressed in the formulation of the Individual Educational Plans (IEPs) of children who need to improve in these areas.

Unfortunately, as Richmond and Horn (40, p. 159) point out, the need to assess adaptive behavior has not been accompanied by the instruments necessary to accomplish that task. Instruments available for that purpose such as the Vineland Social Maturity Scale (12) or the Adaptive Behavior Scale - Public School Version (22) (ABS-PS) were not developed primarily for use in public school settings. Although the ABS-PS is a revision, many teachers and school psychologists attempting to use it concur that it is too lengthy and irrelevant. In addition, Bailey and Richmond (2, p. 260) report that the ABS-PS correlates highly with measures of intelligence (.75) and stress that its use in the placement process is questionable because of this. The results of the Coulter and Morrow survey (6, pp. 102-103) indicated that 60 per cent of those experienced in the use of the ABS-PS felt that it was not appropriate for use in their school systems.

Another instrument designed to measure adaptive behavior is the System of Multicultural Pluralistic Assessment (30) (SOMPA). Although this process of assessment resulted from many years of research and development, it is criticized widely for its failure to meet the needs of children in schools (16). The Adaptive Behavior Inventory for Children (30) (ABIC), a part of SOMPA, necessitates a lengthy home
visit and was designed primarily for identification and placement purposes. It has been criticized by Oakland (34, 35) for this restricted use. The theoretical position of the ABIC appears, at least to some of its users and reviewers, to be an attempt to keep children out of special education. It provides little framework for suggesting the kind of educational programming a child in academic difficulty may need (40, p. 160).

Since adaptive behavior has been generally defined as effectiveness in coping with the natural and social demands of the environment (2, p. 260), it is felt that an easily-administered instrument designed to measure coping behavior would be a welcome addition to the options open to practitioners who wish to accurately assess adaptive behavior. Zeitlin’s Coping Inventory (58) (CI) was designed for this purpose. It was also designed to be useful in planning educational programs to enhance a child’s adaptive skills.

Observations made by proponents of other measures of adaptive behavior appear to apply also to the CI. Figueroa (13, p. 35) states that it is extremely difficult to describe school-related behaviors with any degree of accuracy and reliability. He also recognizes that the development of interventions that interact with these behaviors is even more complicated. He recommends that all sources of information
available, whether they are diagnostic or descriptivist, be used for this purpose.

**Summary and Relevance of the Study**

In summary, although a review of recent research into pattern analysis of WISC-R subtest profiles does not appear to indicate a global pattern useful in the identification of LD children, it does support pattern analysis for the formulation of hypotheses regarding an individual student's particular learning strengths and weaknesses. Some interesting consistencies are apparent in research compiled on WISC-R performance by groups of LD children. They tend to score characteristically low on four subtests: Information, Arithmetic, Digit Span, and Coding. Kaufman (21, p. 17) concludes that it is reasonable to postulate strong ability for LD children in perceptual organization, medium ability in verbal comprehension, and weak ability in whatever is measured by the third factor.

Examination of recurring WISC-R profiles for groups of LD children raises another issue of importance. By definition, a child classified as LD in Texas must be shown to be within average range intellectually, free of serious emotional disturbance, sensory impairment, cultural deprivation, or brain damage; and, in addition, must be achieving significantly below his grade placement and measured ability in one or more academic areas (48, pp. 25-27) (Appendix C). Since LD children, generally, score
low on Information and Arithmetic, their low Verbal and Full Scale IQs on the WISC-R may be an effect of poor school achievement for these youngsters (21, p. 20).

Some learning disabilities may not be related to the skills assessed by the WISC-R; therefore, there may be no relationship between some children's learning disabilities and their WISC-R performance (14, p. 328). It is possible that behavioral components assessed under the rubric of adaptive behavior are related to a child's inability to take advantage of educational opportunities offered to him. These behavioral components may be related to WISC-R performance, particularly the third factor.

Research on the assessment of adaptive behavior is remarkable only by its scarcity in the literature. Given its prominence in recent legislation, it might be expected that textbooks on psychological assessment would feature the measurement of adaptive behavior as a prominent topic for study. As recently as 1978, a search of textbooks in common use in colleges and universities unearthed no mention of adaptive behavior and its measurement (6, p. 4). Recently published or revised textbooks, however, do include chapters on the ramifications of PL 94-142 and the assessment of adaptive behavior (26, 27, 42).

Each test presently used to assess adaptive behavior has been researched to some extent and found lacking (2, 16, 34, 35, 40). The Vineland (12), as a venerable tool
for the assessment of social competence, is badly in need of revision and updating. Item placement may no longer be appropriate and the sample on which the Vineland was normed is very restricted (42, p. 435). Although the avowed purpose of the AAMD ABS-PS (22) is to aid in placement and program-planning decisions in the public schools, the reliability and validity of the scale are not adequate for these purposes (42, p. 443). The ABIC (30) has been criticized because the use of a single scale and single set of norms for all children violates the pluralistic principles of SOMPA. In addition, since the sole informant of the child's adaptation is the mother, the ABIC may be more of a test of parental perception than of the child's role behavior (16, p. 54).

Even though Leland (24, p. 25) emphasizes that behaviors which interfere with the learning process are reversible and that it is their identification which permits the establishment of appropriate programs of intervention, the need for an accurate measure of adaptive behavior has largely gone unmet. When a child is referred for evaluation for learning or behavior problems, the precise specification of behaviors which are troublesome is of primary importance in the diagnostic process. It is felt that the use of a test such as the CI, in conjunction with the measurement of cognitive functioning, would add important definition to the process of assessment.
CHAPTER BIBLIOGRAPHY


CHAPTER III

METHODS AND PROCEDURES

Population and Sample

Permission for this study was obtained from the Director of the Cooke County Special Education Cooperative and the author of the CI (See Appendix B). Anonymity and confidentiality of collected data were guaranteed and research was carried out in accordance with the ethical guidelines established by the American Psychological Association (1).

The Cooke County Special Education Cooperative serves special education students in six independent school districts in this North Central Texas county. Total population in Cooke County is reported by the Gainesville Chamber of Commerce to be 23,471. This area includes one small town, several farm communities, and a large rural area. The population of rural areas is largely of whites. There are two communities of predominantly German heritage. Racial composition of the town is about ninety per cent white, seven per cent black, two per cent Hispanic, and one per cent other. Rural areas are a mixture of agriculture, ranching, gas and oil production, and one private lake development. The small town is also the county seat and is supported largely by a single large oil well supply manufacturing and assembly
plant. The county has ten elementary schools, two middle schools, and six high schools.

Subjects

Each school in the Cooke County Special Education Cooperative contributed subjects for this study. All students designated as LD and currently receiving instruction in a resource room for a part of each day and who were in the WISC-R age range (6-0-0/16-11-30) during the fall semester of 1981-82 were included in the sample. Only those students whose intellectual functioning was assessed in some other way (e.g., use of some other IQ test) were not included.

The sample consisted of 48 girls and 112 boys. The children ranged in age from six years, three months to sixteen years, two months, with a median age of nine years, five months. Racial composition of this group was eighty-eight per cent white, eleven per cent black, and one per cent Hispanic. WISC-R full scale IQ scores ranged from 76 to 118. All subjects in the sample were administered the WISC-R (exclusive of the Mazes subtest) by the same examiner who routinely tests for a variety of purposes in addition to identification of learning disabilities.

Instruments

1. Wechsler Intelligence Scale for Children - Revised (4) (WISC-R). The properties and characteristics of this instrument are well known and highly publicized.
2. **Coping Inventory** (Appendix A) (5) (CI). Zeitlin (5, p. 3) describes the CI as follows:

The Coping Inventory is a criterion-referenced observation instrument that may be used to describe adaptive behavior of children ages three to 16. It assesses two categories of behavior - Self and Environment, and three dimensions of style - Productive, Active and Flexible. These categories and dimensions are defined by 48 observation items divided into six subsections. Each item is ratable on a scale of "1" to "5". A rating of "1" is assigned when there is "no or very minimal evidence of competency." A rating of "5" is assigned when "the behavior is effectively demonstrated."

Application of the Coping Inventory in observational settings will yield twelve scores. A "score summary" and a "score profile" can be generated from observations. The twelve scores are:

(1) Self-Productive
(2) Self-Active
(3) Self-Flexible
(4) Environment-Productive
(5) Environment-Active
(6) Environment-Flexible
(7) Self-Total
(8) Environment-Total
(9) Productive-Total
(10) Active-Total
(11) Flexible-Total
(12) Coping-Total (Adaptive Behavior Index)

Zeitlin (5, pp. 6-7) describes the establishment of the reliability of the CI as follows:

Four trained observers applied the Coping Inventory to the sample of 103 children in the field test sites. All 44 handicapped children were seen by pairs of observers, 37 of the 59 non-handicapped children were seen by pairs of observers. The remaining 22 non-handicapped youngsters were seen by a single observer. Therefore, inter-observer reliability data are based on observer pairs having seen 81 children.
Table I shows the inter-observer reliability coefficients for the observer-pairs for the twelve scores yielded by the Coping Inventory. In general the reliability coefficients for observer pairs are higher for the handicapped group than for the non-handicapped group. All reliability coefficients are significant (p > .001).

To establish the degree of agreement between observer pairs on the 48 Coping Inventory items a "discrepancy index" for each item was determined. The discrepancy index resulted from finding the difference between the ratings for each observer pair for each item and then computing the mean difference for all subjects in the handicapped and non-handicapped groups. The formula for computing the discrepancy index is

\[
D_{in} = \frac{\sum |0_{n,1} - 0_{n,2}|}{N}
\]

where:
- \( D_{in} \) = the Discrepancy Index for an item
- \( 0_{n,1} \) = the item rating for one observer
- \( 0_{n,2} \) = the item rating for the other observer
- \( N \) = the number of children observed on an item
### TABLE I
INTER-OBSERVER RELIABILITY COEFFICIENTS
FOR OBSERVER PAIRS FOR THE 12 COPING INVENTORY SCORES

<table>
<thead>
<tr>
<th>Scores</th>
<th>&quot;r&quot; Handicapped (N = 44)</th>
<th>&quot;r&quot; Non-handicapped (N = 37)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Prod/Non-Prod</td>
<td>.866</td>
<td>.802</td>
</tr>
<tr>
<td>Env-Prod/Non-Prod</td>
<td>.943</td>
<td>.872</td>
</tr>
<tr>
<td>Self-Active/Passive</td>
<td>.886</td>
<td>.805</td>
</tr>
<tr>
<td>Env-Active/Passive</td>
<td>.892</td>
<td>.843</td>
</tr>
<tr>
<td>Self-Flex/Rigid</td>
<td>.892</td>
<td>.837</td>
</tr>
<tr>
<td>Env-Flex/Rigid</td>
<td>.781</td>
<td>.781</td>
</tr>
<tr>
<td>Prod/non-Prod</td>
<td>.920</td>
<td>.875</td>
</tr>
<tr>
<td>Active/Passive</td>
<td>.909</td>
<td>.875</td>
</tr>
<tr>
<td>Flex/Rigid</td>
<td>.864</td>
<td>.849</td>
</tr>
<tr>
<td>Self</td>
<td>.896</td>
<td>.858</td>
</tr>
<tr>
<td>Environment</td>
<td>.928</td>
<td>.891</td>
</tr>
<tr>
<td>Total Coping</td>
<td>.920</td>
<td>.895</td>
</tr>
</tbody>
</table>

*All "r's" significant beyond .001

Split-half reliability coefficients for the CI for handicapped groups and non-handicapped groups are reported as $r = .989$, $p = .001$, $r = .965$, $p = .001$, respectively.

Standard errors of measurement on the same groups and data are reported as $SE_m = .083$ and $SE_m = .099$, respectively.

Table II shows a comparison of the means and standard deviations for the 12 scores yielded by the CI for both handicapped and non-handicapped groups:
TABLE II
MEANS AND STANDARD DEVIATIONS FOR THE 12 COPING INVENTORY SCORES FOR HANDICAPPED AND NON-HANDICAPPED GROUPS

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Handicapped X</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Group (N=44)</td>
<td>2.98</td>
<td>3.16</td>
<td>3.02</td>
<td>3.00</td>
<td>2.78</td>
<td>3.04</td>
</tr>
<tr>
<td></td>
<td>0.86</td>
<td>0.86</td>
<td>0.85</td>
<td>0.83</td>
<td>0.89</td>
<td>0.69</td>
</tr>
<tr>
<td><strong>Non-handicapped X</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group (N=59)</td>
<td>4.11</td>
<td>4.10</td>
<td>4.05</td>
<td>4.03</td>
<td>3.92</td>
<td>3.95</td>
</tr>
<tr>
<td></td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.58</td>
<td>0.63</td>
<td>0.59</td>
</tr>
</tbody>
</table>

\[ t^* \]
7.57  6.30  6.95  7.04  7.25  7.04

<table>
<thead>
<tr>
<th></th>
<th>Prod.</th>
<th>Act.</th>
<th>Flex.</th>
<th>Self</th>
<th>Env.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Handicapped X</strong></td>
<td>3.07</td>
<td>3.01</td>
<td>2.91</td>
<td>2.94</td>
<td>3.09</td>
<td>3.01</td>
</tr>
<tr>
<td>Group</td>
<td>0.84</td>
<td>0.79</td>
<td>0.77</td>
<td>0.83</td>
<td>0.78</td>
<td>0.79</td>
</tr>
<tr>
<td><strong>Non-handicapped X</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>4.10</td>
<td>4.04</td>
<td>3.93</td>
<td>4.05</td>
<td>4.05</td>
<td>4.05</td>
</tr>
<tr>
<td></td>
<td>0.54</td>
<td>0.54</td>
<td>0.58</td>
<td>0.55</td>
<td>0.54</td>
<td>0.53</td>
</tr>
</tbody>
</table>

\[ t^* \]
7.12  7.45  7.36  7.70  7.02  7.55

*All t's significant beyond .001

Factor analysis procedures on both handicapped and non-handicapped groups showed essentially that the CI is a single factor instrument. For the non-handicapped group, a single factor was extracted with significant factor loadings (r > 0.40) for all items except Environment-Flexible 1. Zeitlin calls this a General Coping Factor. It accounts for 62.2 per cent of the variance on the CI for the non-handicapped group.
For the handicapped group, three factors emerged which account for 63.4 per cent of the variance on the CI. Factor I, accounting for 49.5 per cent, is described as a General Coping Factor. Factor II (8.1 per cent of the variance) and Factor III (5.8 per cent of the variance) are described as a Social Acceptability Factor and a Social Awareness Factor, respectively. Zeitlin suggests caution in the interpretation of Factors II and III because of the small amount of variance attributable to them.

Procedure for Collection of Data

Each child was rated by his/her resource teacher during the first semester of the 1981-82 school year. Teachers were instructed in standard procedures for rating students as specified by Zeitlin (5, pp. 23-24). The inventories were collected, scored, and data were tabulated for analysis.

Individual subtest scores from the WISC-R were also tabulated for analysis. All subjects had been determined by a multidisciplinary assessment team to be functioning within normal limits intellectually, to have marked academic delays in the absence of sensory impairment, serious emotional disturbance, mental retardation, or brain damage.

Procedure for Analysis of Data

Separate factor analyses were conducted as follows.

1. A zero-order correlation matrix was computed from the 11 WISC-R scaled scores of each LD student and this was
subjected to a principal-factors solution with communalities
determined by iteration. Factors from this analysis with
eigenvalues greater than 1.0 were rotated orthogonally with
a criterion of simple structure according to Kaiser's (3)
varimax procedures.

2. The same procedure described in 1. was followed,
using the six discrete CI scores for the LD students, for
the correlation matrix.

3. A third analysis utilizing the canonical correlation
model (2, pp. 168-197) for factoring two batteries simultane-
ously was carried out using the 11 WISC-R scaled scores and
the six CI scores to extract factors which, though uncorrelated
within batteries, would provide maximum correlations of pairs
of factors across these two batteries. Canonical factorization
was to have been continued until all the orthogonal dimensions
of common variance or redundancy between the two batteries had
been located. Resulting canonical correlations were to be
tested for significance using standard procedures as outlined
by Cooley and Lohnes (2, p. 175).

4. Coefficients of redundancy were to have been computed
to express the amount of actual overlay between the two bat-
teries that was packaged in each of the significant canonical
correlations derived from 3.

5. Additional statistical treatment was to be developed
contingent on the results of 3. and 4., above.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

RESULTS AND DISCUSSION

The research questions addressed by this study concerned the factorial structure of intelligence (as measured by the WISC-R) and adaptive behavior (as measured by the CI) for a sample of 160 LD children receiving regular instruction in a resource room in a school served by the Cooke County Special Education Cooperative during the fall semester of 1981-1982. The question of whether or not the WISC-R and CI were interrelated significantly for this sample was also investigated by canonical correlation. Additional statistical treatment based on the results of the canonical correlation was carried out and is also reported.

The statistical analyses necessary to answer the research questions were performed at the North Texas State University Computer Center using the SPSS FACTOR procedure (10, pp. 478-479). Treatment of data by this program involves the following procedures:

(1) variables to be factored are listed and input as raw data;

(2) number of factors extracted in each analysis is determined by the number of roots
(eigenvalues) of the correlation matrices which are greater than or equal to 1.0;
(3) communalities are estimated iteratively;
(4) resulting factors are rotated to varimax criterion; and
(5) statistical options output include measures of central tendency.

Results of the factor analyses are reported in the order in which the research questions were addressed in Chapter I. In addition, since measures of central tendency were output for both the WISC-R and CI as part of the computer program, these data are included and discussed in relation to reported research.

Presentation of Data

The first research question asked what factors emerge from an analysis of the 11 subtest scores (excluding the Mazes subtest only) of the Wechsler Intelligence Scale for Children - Revised (13) for a population of learning disabled children. WISC-R subtest scores for this population of 160 LD children were subjected to a principal-factor analysis and resulting factors were rotated to varimax criterion. Individual loadings were considered significant if they were ≥ 0.30. WISC-R varimax rotated factor loadings are shown in Table III. The three factors which emerged for this population corresponded to those labeled by
Kaufman (8, p. 21) as Verbal Comprehension (I), Perceptual Organization (II), and Freedom from Distractibility (III).

### TABLE III
**WISC-R VARIMAX ROTATED FACTOR LOADINGS***

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Information</td>
<td>.5043</td>
</tr>
<tr>
<td>Similarities</td>
<td>.5184</td>
</tr>
<tr>
<td>Arithmetic</td>
<td>.2987</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>.8286</td>
</tr>
<tr>
<td>Comprehension</td>
<td>.7480</td>
</tr>
<tr>
<td>Digit Span</td>
<td>.2666</td>
</tr>
<tr>
<td>Picture Completion</td>
<td>.1901</td>
</tr>
<tr>
<td>Picture Arrangement</td>
<td>.1971</td>
</tr>
<tr>
<td>Block Design</td>
<td>.0786</td>
</tr>
<tr>
<td>Object Assembly</td>
<td>.1047</td>
</tr>
<tr>
<td>Coding</td>
<td>.0547</td>
</tr>
</tbody>
</table>

| %Variance  | 71.5 | 20.7 | 7.8  |
| Cumulative Var.| 71.5 | 92.2 | 100.0|

*Significant loadings ($> .30$) are underlined.

The Verbal Comprehension factor was characterized by moderate to high loadings of the subtests offered by Wechsler (13) as measures of verbal intelligence (the Information, Similarities, Arithmetic, Vocabulary, and Comprehension subtests), although the loading of Arithmetic was much
less than its loading on Factor III. Loading of Performance subtests on Factor I was unremarkable, while Performance subtests, with the exception of Coding, loaded moderate to high on Factor II. Verbal subtest loadings on Factor II were largely uninterpretable, with the possible exception of the Similarities subtest (.29), which approached significance. Factor III is characterized by interpretable loadings of the Arithmetic, Digit Span, and Coding subtests, with the Arithmetic subtest producing the heaviest loading on this factor. The loading of the Information subtest (.27) on Factor III suggests the possibility that this subtest may contribute to the Freedom from Distractibility factor for this population.

The second research question asked what factors emerge from an analysis of the six discrete scores obtained from teacher ratings on the Coping Inventory (14) for a population of learning disabled children. The results of a principal-factor analysis of the CI are shown in Table IV. Since only one factor emerged, further rotation would have been pointless. Inspection of Table IV shows that, for this population, the CI is largely a one-factor test.

The results of factoring CI scores for this population agree with Zeitlin's analysis of CI scores for the non-handicapped group from her original field test study (14, p. 11). Both analyses resulted in the emergence of
one predominant factor. In the Zeitlin analysis of non-handicapped children, the predominant factor extracted accounted for 62.2 per cent of the variance. The factor extracted in the present study accounted for 76.6 per cent of the variance.

TABLE IV

COPING INVENTORY FACTOR MATRIX
PRINCIPAL FACTOR ANALYSIS
WITH ITERATIONS

<table>
<thead>
<tr>
<th>Category-Dimension</th>
<th>Factor I</th>
<th>$h^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Productive</td>
<td>.9008</td>
<td>.8115</td>
</tr>
<tr>
<td>Self-Active</td>
<td>.8559</td>
<td>.7327</td>
</tr>
<tr>
<td>Self-Flexible</td>
<td>.8202</td>
<td>.6728</td>
</tr>
<tr>
<td>Environment-Productive</td>
<td>.9219</td>
<td>.8499</td>
</tr>
<tr>
<td>Environment-Active</td>
<td>.8801</td>
<td>.7745</td>
</tr>
<tr>
<td>Environment-Flexible</td>
<td>.8706</td>
<td>.7579</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>4.5993</td>
<td>4.5993</td>
</tr>
<tr>
<td>%Variance</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Samples of individual CI profiles selected from data gathered during the course of this study are presented in Appendix D. They illustrate how the CI may be used to generate goals and objectives in educational planning for LD children. It can be seen from these profiles that children with the same total ABI scores can differ significantly in their individual patterns of coping behavior.
The third research question asked whether intellectual functioning (as measured by the WISC-R) and adaptive behavior (as measured by the CI) were significantly interrelated among learning disabled children. To answer this question scaled scores from the WISC-R and the CI for this population of 160 LD children were analyzed by computer by the method of canonical correlation. This model used the same analytic trick to display the structure of relationships across domains of measurement that the factor model uses to display the structure of relationships within a domain. The factor model selects linear functions of tests that have maximum variances, subject to restrictions of orthogonality. The canonical model selects linear functions that have maximum covariances between domains, subject again to restrictions of orthogonality (4, p. 169).

The essential point to canonical correlation analysis is that canonical variates from each subset of data are meant to correspond. In other words, the first canonical variate from the first set of variables and the first canonical variate from the second set of variables are chosen so as to maximally correlate with each other. The amount of correlation between each corresponding pair of canonical variates is the correlation between them, and its square, which is equivalent to the eigenvalue, represents the amount of variance in one canonical variate that
is accounted for by the other canonical variate (10, p. 517).

In order to answer the third research question, raw data from both the WISC-R and CI were combined and subjected to canonical correlation analysis using the SSPS computer subprogram CANCORR (10, pp. 515-527). This subprogram automatically outputs (1) the canonical correlations, (2) results of tests of statistical significance for the correlations, and (3) the canonical variate coefficients.

The analysis of data from the WISC-R and CI resulted in no canonical correlation which was significant at the .05 level. In other words, no significant amount of relationship was found between these two sets of variables. Since there was no comprehensible patterning of these sets of data, the computer terminated the program. Thus, the answer to the third research question is that for this population, intellectual functioning (as measured by the WISC-R) and adaptive behavior (as measured by the CI) are not significantly interrelated.

In order to investigate the results of the canonical analysis further, the correlation matrix between these two sets of data was analyzed by principal-factor analysis, with communalities estimated by iteration, and then rotated to varimax criterion. Correlation coefficients are shown in Table V. Correlations below +.20 were omitted in the interest of clarity.
<table>
<thead>
<tr>
<th></th>
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<tr>
<td>SA</td>
<td></td>
<td></td>
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<td></td>
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<td>83</td>
<td>70</td>
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</tr>
<tr>
<td>SF</td>
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<td></td>
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<td></td>
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<td>75</td>
<td>78</td>
<td>69</td>
<td>83</td>
</tr>
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<td>EP</td>
<td></td>
<td></td>
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<td></td>
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<td>75</td>
<td>75</td>
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<td>EA</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

*Decimals are omitted and only coefficients ≥ .20 are included.

** Abbreviations: SP: Self-Productive; SA: Self-Active; SF: Self-Active;
EP: Environment-Productive; EA: Environment-Active;
EF: Environment-Flexible.

***Correlations ≥ .30 are underlined.
The only WISC-R subtests to show any relationship to CI subtests were the Arithmetic and Comprehension subtests. Whether or not these findings are interpretable is questionable. It can be seen, however, that results of a factor analysis of these variables might be predicted from these correlations. Generally speaking, verbal subtests on the WISC-R were positively related, performance subtests were positively related, and the CI scores were highly and positively interrelated.

The rotated factor matrix resulting from the factor analysis and varimax rotation of WISC-R and CI scaled scores is shown in Table VI. The relative independence of the four factors obtained is readily apparent. Although there are some alterations of loadings among factors when these data are compared to the separate analyses carried out on the WISC-R and CI, the same configuration is manifested. All the CI scales loaded heavily on Factor I. The verbal subtests of the WISC-R, with the exception of Digit Span, loaded on Factor II. This is consistent with interpretation of this factor as Verbal Comprehension. The performance subtests of the WISC-R, with the exception of Coding, loaded on Factor III. This is consistent with previous findings for a Perceptual Organization factor. In this analysis, the Similarities subtest also loaded on Factor III. The only subtests loading on Factor IV were Information and Digit Span. Arithmetic loaded positively on this factor, but not significantly. Thus, findings with regard
<table>
<thead>
<tr>
<th>Subtests</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>$h^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>0.09228</td>
<td>0.48196</td>
<td>0.18353</td>
<td>0.37153</td>
<td>0.4125</td>
</tr>
<tr>
<td>Similarities</td>
<td>-0.01416</td>
<td>0.53801</td>
<td>0.32695</td>
<td>0.14485</td>
<td>0.4175</td>
</tr>
<tr>
<td>Arithmetic</td>
<td>0.17444</td>
<td>0.35970</td>
<td>0.19146</td>
<td>0.24019</td>
<td>0.2542</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>0.03555</td>
<td>0.79539</td>
<td>0.22927</td>
<td>0.14782</td>
<td>0.6524</td>
</tr>
<tr>
<td>Comprehension</td>
<td>0.16195</td>
<td>0.83650</td>
<td>0.13464</td>
<td>-0.02981</td>
<td>0.7450</td>
</tr>
<tr>
<td>Digit Span</td>
<td>0.01325</td>
<td>0.25960</td>
<td>0.17647</td>
<td>0.44584</td>
<td>0.2975</td>
</tr>
<tr>
<td>Picture Completion</td>
<td>0.03871</td>
<td>0.16402</td>
<td>0.52353</td>
<td>0.06731</td>
<td>0.3070</td>
</tr>
<tr>
<td>Picture Arrangement</td>
<td>0.06037</td>
<td>0.17618</td>
<td>0.78274</td>
<td>0.10907</td>
<td>0.2796</td>
</tr>
<tr>
<td>Block Design</td>
<td>-0.00895</td>
<td>0.07128</td>
<td>0.71467</td>
<td>0.11428</td>
<td>0.5290</td>
</tr>
<tr>
<td>Object Assembly</td>
<td>-0.07623</td>
<td>0.13290</td>
<td>0.63707</td>
<td>-0.06873</td>
<td>0.4341</td>
</tr>
<tr>
<td>Coding</td>
<td>0.05142</td>
<td>0.13273</td>
<td>0.25526</td>
<td>0.12702</td>
<td>0.1016</td>
</tr>
<tr>
<td>Self-Productive</td>
<td>0.89511</td>
<td>0.05476</td>
<td>-0.02333</td>
<td>0.18043</td>
<td>0.8373</td>
</tr>
<tr>
<td>Self-Active</td>
<td>0.85377</td>
<td>0.07874</td>
<td>0.00817</td>
<td>-0.02550</td>
<td>0.7359</td>
</tr>
<tr>
<td>Self-Flexible</td>
<td>0.81825</td>
<td>0.02372</td>
<td>0.00664</td>
<td>0.24936</td>
<td>0.7323</td>
</tr>
<tr>
<td>Environment-Productive</td>
<td>0.91809</td>
<td>0.06932</td>
<td>0.01691</td>
<td>0.00523</td>
<td>0.8480</td>
</tr>
<tr>
<td>Environment-Active</td>
<td>0.88428</td>
<td>0.10171</td>
<td>0.03460</td>
<td>-0.10980</td>
<td>0.8056</td>
</tr>
<tr>
<td>Environment-Flexible</td>
<td>0.86519</td>
<td>0.11996</td>
<td>0.09329</td>
<td>-0.03163</td>
<td>0.7727</td>
</tr>
</tbody>
</table>

%Variance

<table>
<thead>
<tr>
<th>Cum. Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>54.2</td>
</tr>
<tr>
<td>85.9</td>
</tr>
</tbody>
</table>

Cumulative Variance

<table>
<thead>
<tr>
<th>Cumulative Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>95.8</td>
</tr>
</tbody>
</table>

$*$Significant loadings ($\geq .30$) are underlined.
to a Freedom from Distractibility factor, are not as clear as they were when these data were analyzed separately. It may be concluded, however, that adaptive behavior, as measured by the CI, and intellectual functioning, as measured by the WISC-R, are not measuring significantly related phenomena in this population.

The fourth research question concerned the nature of significant overlap in measurement variance between the WISC-R and CI among learning disabled children. Since no significant overlap was found, this research question was not addressed.

Measures of Central Tendency

Means and standard deviations for this population of LD children were output as a part of the SPSS FACTOR program (10) for the scaled scores from the WISC-R and CI. This information is reported here so that this study may be related to previous research reported in the literature. There is also the possibility that data derived from the present study may be useful to future researchers investigating these same areas.

WISC-R

Means and standard deviations for the WISC-R subtest scaled scores for this population are shown in Table VII. Also included in Table VII, for comparison purposes, are the means and standard deviations for the WISC-R subtest.
<table>
<thead>
<tr>
<th>Group</th>
<th>Inf</th>
<th>Sim</th>
<th>Ar</th>
<th>Voc</th>
<th>Com</th>
<th>DS</th>
<th>PC</th>
<th>PA</th>
<th>BD</th>
<th>OA</th>
<th>Cod</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Present Study Mean</strong></td>
<td>7.5</td>
<td>9.1</td>
<td>8.3</td>
<td>9.6</td>
<td>10.6</td>
<td>6.9</td>
<td>10.0</td>
<td>10.8</td>
<td>10.1</td>
<td>11.0</td>
<td>8.3</td>
</tr>
<tr>
<td>LD (N=160)</td>
<td>2.3</td>
<td>2.0</td>
<td>1.9</td>
<td>2.4</td>
<td>2.3</td>
<td>2.1</td>
<td>2.4</td>
<td>2.1</td>
<td>2.1</td>
<td>2.0</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Ahrens Study(1)Mean</strong></td>
<td>10.3</td>
<td>10.2</td>
<td>9.5</td>
<td>9.6</td>
<td>10.5</td>
<td>9.7</td>
<td>9.7</td>
<td>11.1</td>
<td>10.0</td>
<td>10.9</td>
<td>9.9</td>
</tr>
<tr>
<td>Non-LD (N=150)</td>
<td>2.1</td>
<td>2.2</td>
<td>2.3</td>
<td>2.1</td>
<td>2.0</td>
<td>2.7</td>
<td>2.3</td>
<td>2.5</td>
<td>2.5</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Cullen, et al. Mean</strong></td>
<td>8.9</td>
<td>10.5</td>
<td>9.0</td>
<td>10.4</td>
<td>9.2</td>
<td>8.8</td>
<td>11.4</td>
<td>11.8</td>
<td>11.1</td>
<td>11.7</td>
<td>8.9</td>
</tr>
<tr>
<td>(5) LD (N=70)</td>
<td>2.2</td>
<td>2.1</td>
<td>2.1</td>
<td>2.6</td>
<td>2.6</td>
<td>2.1</td>
<td>2.5</td>
<td>2.3</td>
<td>2.5</td>
<td>2.4</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Hale &amp; Landino Mean</strong></td>
<td>8.8</td>
<td>8.9</td>
<td>7.7</td>
<td>9.0</td>
<td>9.4</td>
<td>6.2</td>
<td>10.2</td>
<td>10.4</td>
<td>9.5</td>
<td>10.5</td>
<td>7.2</td>
</tr>
<tr>
<td>(6) LD (N=100)</td>
<td>3.1</td>
<td>3.4</td>
<td>2.1</td>
<td>2.7</td>
<td>3.0</td>
<td>2.6</td>
<td>2.6</td>
<td>3.3</td>
<td>2.4</td>
<td>3.0</td>
<td>2.1</td>
</tr>
</tbody>
</table>
scaled scores for two similar populations (5, 6) and a study of 100 children from Denton and Lewisville, Texas, who were selected on the basis of nonclinical variables; i.e., age and sex (1). Data from these studies were categorized as recommended by Kaufman (8, p. 21) and the results of these groupings are shown in Table VIII.

**TABLE VIII**

KAUFMAN CATEGORIZATION OF WISC-R SUBTESTS FOR LD AND NON-LD GROUPS OF CHILDREN

<table>
<thead>
<tr>
<th>Group</th>
<th>Perceptual Organization</th>
<th>Verbal Comprehension</th>
<th>Freedom from Distractibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present Study</td>
<td>10.5</td>
<td>9.2</td>
<td>7.8</td>
</tr>
<tr>
<td>LD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cullen et al.</td>
<td>11.5</td>
<td>9.8</td>
<td>8.9</td>
</tr>
<tr>
<td>Hale &amp; Landino</td>
<td>10.2</td>
<td>9.0</td>
<td>8.9</td>
</tr>
<tr>
<td>LD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ahrens Study</td>
<td>10.4</td>
<td>10.2</td>
<td>9.7</td>
</tr>
<tr>
<td>Non-LD</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspection of these two tables illustrates Kaufman's predicted patterning of Perceptual Organization (PO) > Verbal Comprehension (VC) > Freedom from Distractibility
(FD) for all groups, although categories found for the non-clinical population were less clearly defined than for the LD groups.

Measures of central tendency and score ranges for the individual subtests from the WISC-R data for the present study are shown in Table IX.

**TABLE IX**

**WISC-R: MEASURES OF CENTRAL TENDENCY**

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Range</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>2-13</td>
<td>7.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Similarities</td>
<td>4-14</td>
<td>9.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Arithmetic</td>
<td>4-14</td>
<td>8.3</td>
<td>1.9</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>4-16</td>
<td>9.6</td>
<td>2.4</td>
</tr>
<tr>
<td>Comprehension</td>
<td>4-17</td>
<td>10.7</td>
<td>2.3</td>
</tr>
<tr>
<td>Digit Span</td>
<td>2-13</td>
<td>6.9</td>
<td>2.1</td>
</tr>
<tr>
<td>Picture Completion</td>
<td>4-17</td>
<td>10.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Picture Arrangement</td>
<td>4-15</td>
<td>10.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Block Design</td>
<td>2-16</td>
<td>10.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Object Assembly</td>
<td>6-16</td>
<td>11.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Coding</td>
<td>3-15</td>
<td>8.3</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Kaufman (8, p. 196) found that based on his systematic analysis of the 2200 children used in the standardization of the WISC-R, two-thirds of all normal children had scaled-score ranges of seven ± two. Seen from that perspective, ranges as large as nine points are within one standard deviation of the mean and thus can legitimately be termed
"normal." It can be seen from Table IX that, as a group, this sample of LD children scored outside the nine-point range on each of the eleven subtests.

Means for individual WISC-R subtests for the same groups shown in Tables VII and VIII were ranked from "easiest" to "hardest" and are depicted in Table X.

<table>
<thead>
<tr>
<th>Subtest</th>
<th>This Study</th>
<th>Cullen et al.</th>
<th>Hale &amp; Landino</th>
<th>Ahrens Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>10</td>
<td>9.5</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Similarities</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Arithmetic</td>
<td>7.5</td>
<td>8</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Comprehension</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Digit Span</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>8.5</td>
</tr>
<tr>
<td>Picture Completion</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>8.5</td>
</tr>
<tr>
<td>Picture Arrangement</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Block Design</td>
<td>9</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Object Assembly</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Coding</td>
<td>7.5</td>
<td>9.5</td>
<td>10</td>
<td>7</td>
</tr>
</tbody>
</table>

Inspection of Table X shows that the most difficult subtests for the LD groups were Digit Span, Information, Coding, and Arithmetic. For the non-LD group, the hardest tests were Arithmetic, Vocabulary, Digit Span, and Picture
Completion. The least difficult subtests for the LD groups were Object Assembly, Picture Arrangement, and Picture Completion. For the non-LD group, the easy subtests were Picture Arrangement, Object Assembly, and Comprehension. It is of interest that both the LD group in the present study and the non-LD group found the Comprehension subtest to be among the easier subtests. It is a possibility that since both of these samples were drawn from contiguous geographical areas, the children tended to respond similarly to the questions on this particular subtest.

Other groups studied because of school-related problems (2, 3, 9, 11, 12) were found to have some of the same subtests ranked as relatively "hard" (Information, Arithmetic, Digit Span, and Coding) and "easy" (Comprehension, Picture Completion, Picture Arrangement, Block Design, and Object Assembly). When all these studies are considered together, omitting the Ahrens study (1), it can be seen that Object Assembly, Picture Arrangement, and Picture Completion emerge as "easy" subtests and Information, Arithmetic, Digit Span, and Coding emerge as "hard" subtests for children having problems with school achievement. Both LD and non-LD groups made their lowest scores on Arithmetic and Digit Span and their highest scores on Object Assembly and Picture Arrangement. Only "high" Picture Completion, "low" Coding, and "low" Information scaled scores discriminated between LD and non-LD groups in these particular studies.
Coping Inventory

Means and standard deviations obtained from the CI scores, total Self scores, total Environment scores, and the total Coping scores (Adaptive Behavior Index) for this population of LD children are shown in Table XI. Since the range of scores in each case was the same (1.5 to 5.0), this statistic was not included in the Table. A comparison of these findings with Zeitlin's normative data (14, p. 11) indicates that although test scores for individuals may be meaningful for diagnostic purposes, grouped data tend to be remarkably similar for various groups.

TABLE XI
MEASURES OF CENTRAL TENDENCY
COPING INVENTORY

<table>
<thead>
<tr>
<th>Subtests</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Productive</td>
<td>3.26</td>
<td>.78</td>
</tr>
<tr>
<td>Self-Active</td>
<td>3.52</td>
<td>.73</td>
</tr>
<tr>
<td>Self-Flexible</td>
<td>3.14</td>
<td>.84</td>
</tr>
<tr>
<td>Self-Total</td>
<td>3.31</td>
<td>.72</td>
</tr>
<tr>
<td>Environment-Productive</td>
<td>3.50</td>
<td>.77</td>
</tr>
<tr>
<td>Environment-Active</td>
<td>3.36</td>
<td>.86</td>
</tr>
<tr>
<td>Environment-Flexible</td>
<td>3.27</td>
<td>.77</td>
</tr>
<tr>
<td>Environment-Total</td>
<td>3.37</td>
<td>.75</td>
</tr>
<tr>
<td>Adaptive Behavior Index</td>
<td>3.37</td>
<td>.71</td>
</tr>
</tbody>
</table>
Investigation of research carried out subsequent to the initial field testing of the CI and reported by Zeitlin in 1980 (14) appears to bear this out. A study of 57 emotionally-disturbed and neurologically-impaired children aged five to 15 yielded a mean Adaptive Behavior Index (ABI) of 2.84 (14, p. 16). Another study (14, p. 20) was carried out on 121 disadvantaged preschool children enrolled in eight pre-kindergarten classes under Title I. Mean scores for the total sample were Self, 3.19; Environment, 3.08; and ABI, 3.20; with a standard deviation of 1.25. A breakdown of this group according to demographic variables and CI mean scores is shown in Table XII.

TABLE XII

<p>| CI MEANS AND STANDARD DEVIATIONS FOR TITLE I DISADVANTAGED CHILDREN |
|---|---|---|---|---|---|</p>
<table>
<thead>
<tr>
<th>N</th>
<th>Race</th>
<th>Sex</th>
<th>Age</th>
<th>Self X</th>
<th>Env. X</th>
<th>ABI X</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Black</td>
<td>Male</td>
<td>4</td>
<td>3.13</td>
<td>3.20</td>
<td>3.20</td>
</tr>
<tr>
<td>13</td>
<td>Black</td>
<td>Male</td>
<td>5</td>
<td>3.43</td>
<td>3.52</td>
<td>3.50</td>
</tr>
<tr>
<td>32</td>
<td>Black</td>
<td>Female</td>
<td>4</td>
<td>3.37</td>
<td>3.36</td>
<td>3.37</td>
</tr>
<tr>
<td>8</td>
<td>Black</td>
<td>Female</td>
<td>5</td>
<td>3.29</td>
<td>3.10</td>
<td>3.23</td>
</tr>
<tr>
<td>15</td>
<td>Hispanic</td>
<td>Male</td>
<td>4</td>
<td>2.90</td>
<td>2.85</td>
<td>2.90</td>
</tr>
<tr>
<td>2</td>
<td>Hispanic</td>
<td>Male</td>
<td>5</td>
<td>2.80</td>
<td>2.55</td>
<td>2.55</td>
</tr>
<tr>
<td>21</td>
<td>Hispanic</td>
<td>Female</td>
<td>4</td>
<td>3.12</td>
<td>3.12</td>
<td>3.12</td>
</tr>
<tr>
<td>4</td>
<td>Hispanic</td>
<td>Female</td>
<td>5</td>
<td>3.68</td>
<td>3.73</td>
<td>3.70</td>
</tr>
<tr>
<td>3</td>
<td>White</td>
<td>Male</td>
<td>4</td>
<td>2.37</td>
<td>2.77</td>
<td>2.57</td>
</tr>
<tr>
<td>1</td>
<td>White</td>
<td>Female</td>
<td>5</td>
<td>3.00</td>
<td>2.80</td>
<td>2.90</td>
</tr>
</tbody>
</table>
Mean ABI scores for Zeitlin's handicapped group, this study's LD group, and Zeitlin's non-handicapped group were 3.01, 3.37, and 4.05, respectively. It can be seen that based on these findings, this population of LD children, as measured by the CI, copes somewhat less effectively than non-LD groups of children, but better than more seriously handicapped groups of children.
CHAPTER BIBLIOGRAPHY


CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS
AND RECOMMENDATIONS

The problem of this study was to determine the relationship between measures of intellectual functioning and adaptive behavior among LD children.

The purposes of this study were

1. To analyze the factorial structure of intellectual functioning of children classified as LD;
2. To analyze the factorial structure of adaptive behavior among LD children;
3. To display the interrelatedness of intellectual functioning and adaptive behavior among LD children;
4. To determine the nature and significance of overlap between intellectual functioning and adaptive behavior among LD children.

In order to carry out the purposes of this study, answers to the following questions were sought.

1. What factors emerge from an analysis of the 11 subtest scores (excluding the Mazes subtest only) of the WISC-R for a population of LD children?
2. What factors emerge from an analysis of the six discrete scores obtained from teacher ratings on the CI
for a population of LD children?

3. Are intellectual functioning (as measured by the WISC-R) and adaptive behavior (as measured by the CI) significantly interrelated among LD children?

4. What is the nature of significant overlap in measurement variance between the WISC-R and CI among LD children?

Permission for the study was granted by the Director of the Cooke County Special Education Cooperative and the author of the CI (Appendix B). The population for the study consisted of 160 LD students drawn from the six independent school districts of Cooke County. All students classified as LD by an interdisciplinary team of professionals according to Texas Education Agency guidelines (Appendix C) and who were receiving instruction in a resource room for part of each day during the first semester of the 1981-1982 school year were considered for the study. Only those LD students whose ages were not within the WISC-R age range or whose intellectual functioning was assessed with some other test were excluded from the sample. Scaled scores from the WISC-R and CI were tabulated and analyzed on 48 girls and 112 boys. Ages ranged from six years, three months, to sixteen years, two months, with a median age of nine years, five months. Full scale WISC-R IQ scores ranged from 76 to 118 for this population.
To answer the four research questions, separate factor analyses were conducted as follows.

1. A zero-order correlation matrix was computed from the 11 WISC-R scaled scores from the 160 LD students. This was subjected to a principal-factors solution with communalities determined by iteration. Factors from this analysis with eigenvalues greater than 1.0 were subjected to varimax rotation. Resulting factor loadings were considered significant if they were ≥ .30. Results of factorial analysis of the WISC-R agreed with Kaufman's patterning (12, p. 21) of subtests into three factors as follows: Factor I (Verbal Comprehension) loaded significantly on Information (.51), Similarities (.52), Arithmetic (.30), Vocabulary (.83), and Comprehension (.75); Factor II (Perceptual Organization) loaded significantly on Picture Completion (.52), Picture Arrangement (.48), Block Design (.72), and Object Assembly (.60); and Factor III (Freedom from Distractibility) loaded significantly on Arithmetic (.55), Digit Span (.35), and Coding (.39). Factor I accounted for 71.5 per cent of the variance; Factor II, for 20.7 per cent; and Factor III, for 7.8 per cent.

2. A principal-factor analysis of the six discrete scores from the CI for this LD population was computed with communalities estimated by iteration. Since the analysis of the CI resulted in only one factor with an
eigenvalue greater than 1.0, the computer terminated the analysis without further rotation. Thus, for this population, the CI was a one-factor test. This finding agreed with Zeitlin's analysis of CI scores for non-handicapped children which also resulted in one predominant factor (17, p. 14).

3. Scaled scores from both the WISC-R and the CI were subjected to canonical correlation analysis (14, pp. 515-527) to determine whether or not these two tests were significantly interrelated. The analysis resulted in no canonical correlation which was significant at the .05 level. Thus, since no significant overlap between the two tests was elicited, the computer terminated the program.

4. Since no significant overlap between the WISC-R and CI was demonstrated by canonical correlation analysis, research question 4. was not addressed. In order to investigate the results of the canonical correlation, however, the two sets of data were correlated into one supermatrix and factored for principal factors which were rotated to varimax criterion. Correlation coefficients and the rotated factor matrix were reported in tabular form. Four relatively independent factors emerged. Although there were some alterations of loading among factors, findings were consistent with foregoing, separate analyses
of the same data. All the CI scores loaded heavily on Factor I. The Verbal subtests of the WISC-R (excluding Digit Span) loaded on Factor II. The Performance subtests (excluding Coding) loaded on Factor III. In this analysis, the Similarities subtest also loaded significantly on Factor III, although it loaded more heavily on Factor II. Only Information and Digit Span, however, loaded significantly on Factor IV. In this analysis, Factor I could realistically be termed Adaptive Behavior; Factor II, Verbal Comprehension; and Factor III, Perceptual Organization. The Freedom from Distractibility factor was not clearly interpretable when both sets of data were analyzed in combination.

Measures of central tendency for this LD population from both the WISC-R and CI were reported in tabular form and related to relevant research. Means and standard deviations for the 11 subtest scaled scores of the WISC-R were compared to similar data reported in the literature for two similar populations (4, 10) and one non-clinical population (1). It was found that although individual subtest mean scores for the four populations differed, grouping of scores into categories as suggested by Kaufman (12, p. 21) resulted in the predicted patterning of PO > VC > FD. As a group, the LD students in this study had a wider range of individual scaled scores for all subtests than that found by Kaufman in his study of
Wechsler's standardization sample (11, p. 196). Dudley-Marling, et al. (5, p. 317), in a comprehensive review of research reported on the WISC and WISC-R profiles of LD children, concluded that most of the evidence suggested a characteristic WISC-R profile for disabled learners who were said to be most likely to perform relatively well on the Picture Completion, Block Design, and Object Assembly subtests and poorly on the Arithmetic, Digit Span, Coding, and Information subtests. Analysis of WISC-R subtest means for LD and non-LD populations compared for this study, however, indicated that when individual subtests were rated according to difficulty, only "high" Picture Completion, "low" Coding, and "low" Information scaled scores appeared to differentiate between LD and non-LD groups.

Measures of central tendency for this LD population on the CI were reported in tabular form and compared to similar studies reported by Zeitlin (17) for a variety of different populations. It was found that grouped data from the CI varied little from population to population. Mean ABI scores ranged from 2.84 for a group of emotionally-disturbed and neurologically-impaired children (17, p. 19) to 4.05 for a group of non-handicapped children (17, p. 11). Data obtained from the present study yielded a mean ABI score of 3.37 for this group of LD children.
Conclusions

The following conclusions, limited to the subjects in this study, are based upon the preceding discussion of results and findings.

1. Factor analysis of data from 11 subtest scaled scores of the WISC-R (excluding the Mazes subtest only) for this population of 160 LD children yielded three factors which may be realistically described as Verbal Comprehension, Perceptual Organization, and Freedom from Distractibility. This finding is consistent with research reported by both Wechsler (15) and Kaufman (12, 13).

2. Factorial analysis of the CI showed it to be predominantly a single-factor test for this LD population.

3. Simultaneous factoring of the WISC-R and CI by canonical correlation showed that factors underlying these tests were not significantly interrelated for this population.

4. Factoring the WISC-R and CI in combination for principal factors showed some alterations in factor loadings, but results were generally consistent with the separate analyses of the same data. Factors were elicited for Adaptive Behavior, Verbal Comprehension, and Perceptual Organization. The fourth factor was not clearly interpretable as Freedom from Distractibility in this analysis.

5. Measures of central tendency for this population on the WISC-R and CI were not found to be significantly
different from those reported in the literature for a variety of similar populations.

Implications

Even though intellectual functioning and adaptive behavior were shown not to be related significantly (within the specified limits of this study), one of the major implications of this finding is that it is specific to these two measures. While it is possible that the constructs underlying both of these tests are independent of each other, it is also possible that they are both a subset of a more general developmental construct. It is also possible that one of these constructs is a subset of the other. These are theoretical considerations which future instrument development and research will undoubtedly address. Reported research on the relationship of adaptive behavior to intellectual functioning shows great variability. One thing is certain, however: the choice of testing devices for the measurement of adaptive behavior will have a significant bearing on whether or not it is related to intellectual ability.

Another implication of this study is that the lack of relatedness between these two tests may be due to the basic and fundamental difference between norm-referenced and criterion-referenced tests. Emphasis is placed on the observation of a child in familiar surroundings for the CI,
rather than on his verbal response to standardized ques-
tions. Wechsler has stated that intelligence is "the over-
all capacity of an individual to cope with the world around
him . . ." (16, p. 5). Although this definition seems
synonymous with previously-cited definitions of adaptive
behavior, there is a great difference between how a child
responds to a stranger in a clinical setting and how he
responds and interacts with his peers in a familiar environ-
ment. It is possible that the lack of relatedness between
these two constructs lies not in what is being evaluated,
but in the conditions under which the evaluation occurs.

Another basic and fundamental difference between norm-
referenced and criterion-referenced tests lies in the purpose
for which they are used. Adaptive behavior is sometimes
assessed to demonstrate a significant difference between
a particular subject and a norm group for classification/
placement purposes. Such a test could be expected to be
somewhat related to other measures normed by age and de-
velopment. If, on the other hand, the purpose of assessing
adaptive behavior is the planning of an educational program
to improve social adaptation, the test would necessarily
entail tapping interpersonal/intrapersonal coping behaviors.
These two perspectives—the measurement of adaptive behavior
by age-appropriate norms or in social context—appear to be
critical to understanding the measurement of adaptive behavior.
Consequently, the purpose of testing adaptive behavior is of primary importance to the practitioner in the selection of an appropriate measure. If the purpose is classification/placement, a norm-referenced instrument would appear to be the test of choice. The criteria for selection of such a test would be content validity (test items would need to be truly representative of a particular dimension of behavior), appropriate norms, and good reliability. If the purpose is educational program planning, a criterion-referenced test would be selected. Such a test would also be chosen for good content validity (test items would cover a particular dimension of behavior comprehensively), reliability would be judged by inter-rater agreement, and validity would be dependent on whether or not interventions and programs planned using information from test scores could be shown to be effective. It has been noted by Reschley (15, p. 224) that most measures of adaptive behavior are useful for one or the other of these purposes, but not for both.

If the CI is examined in light of the above discussion, it appears that it would probably be most useful in the assessment of adaptive behavior for program planning. It may also be useful in making classification/placement decisions, but this remains to be researched more extensively.

An additional major implication of this study is that a lack of coping skills can disable a learner as surely as
a lack of intellectual or academic skills. Teachers and counselors have begun to realize that increased competence in learning to deal with stress, conflicts, and aggression can open the way to the acquisition of a better education for their students. Many children need training in social skills before they can benefit from remedial educational experience. Although concerns are sometimes expressed about the tendencies for schools to encourage and perpetuate obedient, controlled, conforming behavior in classrooms, evidence from various sources indicates that such behaviors are correlated highly with academic achievement (3). The specific teaching of behaviors such as attending and interacting with the teacher have not only resulted in increased positive behavior from the teacher, but it appears that teaching these social skills will also increase academic learning (3, p. 151).

Many studies (3, 6, 7, 8, 13) of ways and means of teaching adaptive behaviors and social skills in the classroom are appearing in the literature. As emphasis continues to shift from explaining, classifying, or labeling of children to better educational planning so that a child can take advantage of educational opportunities, more research will undoubtedly ensue. Duffey, et al. (6, p. 433), believe that the time may be fast approaching when questions of test bias and operational definitions of handicapping conditions for use in placement/programming decisions in the public
schools will be obsolete concepts. Such imprecise diagnostic classifications as "mental retardation," "emotional disturbance," and "learning disabilities" may all be replaced by "learning objectives achieved." Skill development levels could be routinely assessed, not only with less bias, but with adequate levels of reliability. Assessment would then be based on the actual service provided by the schools: the teaching of a curriculum.

Until then, however, it is felt that use of the CI as an integral part of the assessment of children referred for evaluation would be a fundamental, first step in addressing behavioral changes the child may need to make in order that he may learn to learn. If educational goals are to be realized, social skills must be considered in the educational planning and programming for the LD child. The curriculum for the LD child should include experiences designed to develop appropriate coping behaviors essential for increased acceptance by both peers and teachers.

Recommendations

Based on the findings of this study, the following recommendations are offered.

1. Local norms should be developed for the CI, because acceptable behavior differs from community to community.

2. When the CI is applied to minority students, caution should be used with the assessment of behaviors which
the student may have had no opportunity to experience or learn. For example, Hispanic children may have been reinforced at home for passive response patterns and would tend to score more toward the passive than the active dimension on the CI.

3. Other than the present study, which included subjects ranging in age from six to sixteen, most of the studies reported on the CI have been confined to children of pre-school age. Additional studies with a wider age range of subjects would increase validity and reliability of the CI for these age groups.

4. More research needs to be carried out which addresses whether or not the CI clearly differentiates between those of normal intelligence and the mildly mentally retarded. Until such research is carried out, use of the CI in placement/classification decisions may need to be as an adjunct to the use of norm-referenced tests and the clinical judgment of professionally-trained clinicians.

5. This study needs replication with a large sample of "average" students defined with respect to the various demographic variables to extend the norms presented in the test manual and to determine whether the CI's factor structure varies with regard to these variables.


APPENDIX A

SAMPLE INSTRUMENT
The Coping Inventory (CI) test form comprises the following unnumbered pages. The CI test form may not be reproduced as a part of this dissertation. The name of the publisher/distributor of the CI is found on the title page (Appendix D).
COPING INVENTORY

A MEASURE OF ADAPTIVE BEHAVIOR

SHIRLEY ZEITLIN

RESEARCH EDITION

Innovative Educational Materials
314 Upper Mountain Avenue, Upper Montclair, N.J. 07043  (201) 783-5899, 746-8280

Shirley Zeitlin, 1978. All rights reserved. No part of this form may be reproduced in any manner without permission of the author.
COPING WITH SELF PRODUCTSIVE

1. Child, when presented with a situation or learning that is different, difficult or challenging, solves the problem or finds a way of handling it.

   X 1 2 3 4 5

2. Child responds to external control (for example, rules imposed by adults or peers) in a way that is helpful to the child and/or to the situation.

   X 1 2 3 4 5
   No response or consistently maladaptive

3. Child can use self-protecting devices to control the impact of the environment (for example, can limit or fend off too much stimulation, can withdraw before the situation gets out of hand, can stop and rest before getting overtired).

   X 1 2 3 4 5

4. Child compensates for his/her inability or problem, for example, physical problem, language, perception difficulty, etc. (child uses strengths from other areas to help him manage a situation or learning).

   X 1 2 3 4 5

5. Child applies what he/she has learned to new situations (both mental and emotional).

   X 1 2 3 4 5

6. Child effectively uses language to communicate need (if pre-language, uses effective sounds or behaviors).

   X 1 2 3 4 5
7. Child generally demonstrates a happy feeling.

\[
\begin{array}{ccccc}
1 & 2 & 3 & 4 & 5 \\
\text{unhappy, mood swings, varies with situation, happy.}
\end{array}
\]

8. Child has a high threshold for frustration, does not frustrate easily.

\[
\begin{array}{ccc}
1 & 2 & 3 & 4 & 5 \\
\text{frustrates easily, high threshold for frustration}
\end{array}
\]

9. Child has a healthy pleasure in being him/herself (sense of self worth and well being reflected in pride and satisfaction with self).

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 & 5 \\
\end{array}
\]

10. Child is able to handle anxiety (for example, when the situation is anxiety producing child does not act out, become unusually tense or immobile).

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 & 5 \\
\end{array}
\]

11. Child demonstrates confidence in his/her ability.

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 & 5 \\
\end{array}
\]

12. Child uses cognitive resources effectively (for example, if child is a slow learner he/she functions effectively at own level, if child is of superior intelligence he/she effectively uses that ability). Some indicators are that child is alert, can attend, integrate, perceive, conceive and organize.

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 & 5 \\
\end{array}
\]

\[
\begin{array}{cccc}
\text{SCORE} \\
\end{array}
\]
## COPING WITH SELF

### ACTIVE

1. Child can communicate to others disagreement or feelings of anger, verbally or non-verbally.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
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</table>

2. Child asks for help when needed (feels free to look to adults or peers when help is needed).

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
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<th>4</th>
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<tbody>
<tr>
<td></td>
<td>X</td>
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</table>

*can ask adults or peers, not both, or varies with situation.*

3. Child initiates action to get needs met (makes needs known and does something about it).

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
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</tr>
</tbody>
</table>

4. Child stays with task until completed.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
<td></td>
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</tbody>
</table>

5. Child reacts to sensory stimulation (is responsive to changes in the level or type of stimulation: auditory, touch, temperature, visual).

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>does not react.</td>
<td>inconsistent, may overreact or underreact.</td>
<td>varies with sense and/or situation.</td>
<td>reacts effectively.</td>
<td></td>
</tr>
</tbody>
</table>

6. Child demonstrates effective impulse control which doesn’t interfere with learning rather than impulsiveness, which does.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>highly impulsive.</td>
<td>effective impulse control.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SCORE

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Number of Scoreable Items = **

**RAW SCORE = **

---

*Note: The table for SCORE calculation is not fully visible in the image.*
COPING WITH SELF FLEXIBLE

1. Child can see relationships in new ways, can express impressions in novel or fresh terms, can seek out and develop new ideas or ways of handling things or can be creative and original.

   X 1 2 3 4 5

2. Child balances independence with sufficient dependence to be able to get and use help.

   X 1 2 3 4 5
e x e s s i v e l y dependent or independent. good balance.

3. Child can shift plans or change behavior to achieve a goal.

   X 1 2 3 4 5

4. Child accepts substitutes when necessary (for example, is willing to use makeshift or alternate equipment or accept a substitute gratification).

   X 1 2 3 4 5

5. Child can mobilize resources in high stress situations in an adaptive way.

   X 1 2 3 4 5

6. Child demonstrates independence and self reliance (freedom to act on his/her own without seeking directions or reassurance).

   X 1 2 3 4 5

Number of Scoreable Items

\[
\text{SCORE} = 1 + 2 + 3 + 4 + 5
\]

RAW SCORE
COPING WITH ENVIRONMENT

PRODUCTIVE

1. Child plays with other children (does not avoid them).
   X 1  2  3  4  5

2. Child uses behavior appropriate to the situation.
   X 1  2  3  4  5

3. Child knows what is expected and behaves accordingly, understands the implications of his/her behavior in both task and people situations.
   X 1  2  3  4  5

4. Child understands and responds to directions without external help or support.
   X 1  2  3  4  5

5. Child responds to visual and auditory details in the environment (things, people, changes) by giving some evidence of reacting to them (verbal response or motor behavior).
   X 1  2  3  4  5
   varies with situation or type of input.

6. Child is curious (eager to find out about people, objects, situations).
   X 1  2  3  4  5
7. Child is liked and accepted by other children.

| X | 1 | 2 | 3 | 4 | 5 |

8. Child resists discouragement (for example, infrequently says, "I can't do," does not refuse to try something because of fear of failure, resists being moody or acting out when unsuccessful, stays with a task long enough to work it through or appropriately give up).

| X | 1 | 2 | 3 | 4 | 5 |

9. Child is aware of feelings of others, including angry feelings (for example, asks about other children, comments and/or reacts appropriately to demonstrations of feelings).

| X | 1 | 2 | 3 | 4 | 5 |

- not aware.
- aware of positive or negative feelings but not both, or varies with situation.
- aware of range of feelings.

10. Child demonstrates a capacity for fun, zest, delight and pleasure.

| X | 1 | 2 | 3 | 4 | 5 |

11. Child functions with minimal amount of external structure (self directed, may create own routine or structure).

| X | 1 | 2 | 3 | 4 | 5 |

12. Child is aware of and reacts to cues and moods of other people (for example, facial expressions, voice tones).

| X | 1 | 2 | 3 | 4 | 5 |

---

Number of Scoreable Items

\[
\text{RAW SCORE} = \underline{\phantom{5}} + \underline{\phantom{5}} + \underline{\phantom{5}} + \underline{\phantom{5}} + \underline{\phantom{5}}
\]
COPING WITH ENVIRONMENT
ACTIVE

1. Child uses gross and fine motor skills competently (for example, is well coordinated, does things easily with hands).

<table>
<thead>
<tr>
<th>X</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>minimally competent</td>
<td>some skills used competently, not others, e.g., good gross motor, poor fine motor, or varies with situation</td>
<td>competent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Child is stimulating to others (gets others started, enthused, involved).

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<thead>
<tr>
<th>X</th>
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<th>3</th>
<th>4</th>
<th>5</th>
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</table>

3. Child actively involves self in situations.

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<thead>
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4. Child has an activity level that is appropriate to the situation and is helpful in getting the task accomplished.

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<th>5</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>hypoactive (too little activity) or hyperactive (too much activity)</td>
<td>effective activity level</td>
<td></td>
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</tbody>
</table>

5. Child has a positive orientation to life (expects that needs will be met, is optimistic, and sees the good side of things).

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6. Child has an energy level that is forceful and vigorous.

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<tbody>
<tr>
<td></td>
<td>low energy, easily fatigued</td>
<td>effective energy level, good supply of energy</td>
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Number of Scoreable Items

SCORE

 RAW SCORE
COPING WITH ENVIRONMENT

FLEXIBLE

<p>| | | | | |</p>
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</table>

1. Child accepts warmth and support (for example, responds to affection and encouragement from others, likes to be held, kissed and/or praised).

2. Child gives warmth and support to others (for example, takes other child’s side; demonstrates verbally or by gesture affection or encouragement).

3. Child enjoys newness and discovery (tries new things or activities on own - shows excitement, interest and/or pleasure when he/she discovers new objects, insights or experiences).

4. Child is resilient following disappointment or defeat (bounces back, tries again or becomes interested in something else rather than pouting, being moody or acting out).

5. Child, when necessary, uses a range of strategies to achieve a goal or solve a problem.

6. Child, when necessary, accepts new ideas or reformulates ideas already held (is not rigid in thinking).

---

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Scoreable Items

RAW SCORE = 

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OBSERVATION NOTES
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<th>Dimension</th>
<th>Rating</th>
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<table>
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### ADAPTIVE BEHAVIOR SUMMARY

**Child's Name** .......................................................... **Date** ........................................

<table>
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<tr>
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<td>Number Scoreable Items</td>
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<td>--------------</td>
<td>-----------------------</td>
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<tr>
<td>ACTIVE</td>
<td>ACTIVE</td>
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<tr>
<td>FLEXIBLE</td>
<td>FLEXIBLE</td>
</tr>
<tr>
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<td>TOTAL</td>
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**Self Score** ____________

**Environment Score** ____________

**Sum of Self Score and Environment Score** ____________

**Adaptive Behavior Index** ____________

### Coping Profile

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</table>

**Productive**

**Active**

**Flexible**

**Key:**

Self: _________________

Env: _________________
February 23, 1981

Dollye R. Yeargan, MA  
Associate School Psychologist  
Cooke County Special Education Cooperative  
P.O. Box 801  
Gainesville, Texas  76240  

Dear Ms Yeargan:

I am pleased to have you use the Coping Inventory  
for your research and look forward to seeing your proposal.  

Sincerely,  

Shirley Zeitlin, Ed.D.  
Associate Professor
June 16, 1981

Dear Ms. Yeager,

Sorry to have been so long in replying, but I just got back from vacation.

If you're asking my personal preference, the proposal company that I think is the right grant is I C + C I G R.

As I am starting the research on a topic on adaptive behavior, this question is continuously pressed with little
Research available. In my opinion, even though I'm very anxious for more normative data. The other a major issue. What else? Number one. In a very nice. I'm really excited about this one. I don't know of anyone I am working with 5 year olds only. My sample handicapped group were children who had been classified educable mentally retarded, severely impaired, communication disorders, or emotionally disturbed.

I assume that the abstract was for me to keep. I look forward to hearing about your progress to reaffirm my offer to help.

Sincerely,

[Signature]

P.S. Thanks for the form. But it really
APPENDIX C: Excerpts from Proposed Revision
35.72: Administrative Procedure,
Texas Education Agency, Special
Education Division, Austin, 1979.
Throughout the individual assessment process, appropriate procedural safeguards are observed. (Policy and Administrative Procedure 35.75.070)

(1) **Tests and Other Assessment Procedures**

Tests and other assessment procedures must be:

(A) administered in the child’s demonstrated dominant language or other mode of communication, unless it is clearly inappropriate or unfeasible to do so;

(B) validated for the specific purpose for which they are used;

(C) administered by appropriately trained, licensed, or certified personnel; and

(D) selected and administered so as to ensure that whatever factors the tests purport to measure are being measured, considering the possible effects that the student’s disability may have on the results.

(2) **Individual Assessment Process**

In accordance with procedures established by the Texas Education Agency, each school district develops and implements procedures by which a student referred to special education is given further consideration through an individual assessment and by which the personnel responsible for each stage of the assessment are selected and assigned.

There are three stages in the individual assessment process, the combined results of which yield a comprehensive individual assessment:

(A) a determination of physical, mental, and/or emotional conditions;

(B) a determination of educational performance levels; and

(C) the identification of specific competencies and recommended instructional and related services needed.

(3) **Assessment of Physical, Mental, and/or Emotional Conditions**

(A) The purpose of an assessment of physical, mental, and/or emotional conditions is to determine the presence or absence of a disability which may or may not be contributing
to the educational need of a student. A disability is defined as a physical, mental, or emotional condition, determined by an appropriately designated professional(s), which meets the specific eligibility criteria as established by the Texas Education Agency.

(B) It is not the responsibility of the designated professional(s) to determine that the disability is educationally handicapping; nor is it his/her responsibility to determine the student's need for special education. However, since these determinations will be made by the admission, review, and dismissal committee on the basis of specific eligibility criteria, it is important for the designated professional(s) to provide a written report indicating the presence or absence of symptoms or conditions as specified in the specific eligibility criteria for each handicapping condition. The report may include a statement of functional implications for the educational process.

(C) Assessment of physical, mental, and/or emotional conditions must include a consideration of the student's functioning in at least five areas: language, physical, emotional/behavioral, sociological, and intellectual. Each school district will specify personnel responsibilities and procedures for accomplishing each part of the assessment. The professionals responsible for assessing each area will make professional judgments regarding the degree to which the assessment in each area is necessary. Specific eligibility will indicate the minimum intensity of assessment in each area, but all five areas must be addressed in the written report to the admission, review, and dismissal committee with the exception of pregnant students.

(D) Assessment of very young or severely handicapped students may not be possible within these procedures. The professional(s) responsible for assessing such students must document the rationale for deviating from the standard procedures as well as the results of the assessment.

(E) The assessment of physical, mental, and/or emotional conditions will result in a written report describing the assessment done in each of the five areas and the results of those assessments.

(F) The five areas that must be addressed in an assessment of physical, mental, and emotional conditions are listed
below, along with a description of what the assessment in each area will include when such is required by specific eligibility criteria:

(i) Language

The assessment of an individual's language must consist of formal and/or informal assessment of language dominance and proficiency in both the expressive and receptive domains. This assessment must take place before any other individual assessment may take place.

When it has been determined through assessment of language dominance and proficiency that a student's dominant language is other than English, instruments must be administered in the other language. Where no clear language dominance or proficiency is demonstrated, instruments must be administered in both English and the child's other language. When translating an instrument from English to another language, every effort must be made to maintain the original intent and purpose of each item. Interpretation of scores derived from translated instruments must take into consideration possible errors or inconsistencies in literal or conceptual translation. If possible, the examiner for such assessment will be fluent in both English and the language of the student and sensitive to the cultural differences which may affect the assessment of the student. Where no bilingual examiner is available, an interpreter may be used, recognizing the additional problems inherent in interpreting data gathered in that manner.

(ii) Physical

The assessment of an individual's physical factors (including psychomotor abilities) must consist of an examination of physical conditions which directly affect the student's ability to profit from the educational process. A general medical examination is required only when specified by eligibility criteria or when abnormal physical factors have been identified as part of the assessment of physical factors. The health information collected by the referral committee is sufficient if a complete
medical examination is not required by specific eligibility criteria and if there are no indications of need for further physical assessment.

(iii) Emotional/Behavioral

The assessment of an individual's emotional and/or behavioral factors must consist of formally and/or informally identifying those characteristics manifested in in-school and/or out-of-school behavior which may influence learning. Data contributing to the assessment of these factors must include in-school and/or out-of-school observations and may include behavior checklists, adaptive behavior scales, student interviews, and formal projective techniques. Sources of the data may include teachers, educational diagnosticians, visiting teachers, physicians, psychologists, psychiatrists, the family, and the student.

(iv) Sociological

The assessment of an individual's sociological variables must consist of identifying the child's family and community environmental situation influencing learning and behavioral patterns. Sociological data are obtained through communication and cooperation with the family. These data may contribute to the assessment of the student's intellectual and adaptive behavior. Students are not eligible for special education if the only deficiencies identified are directly attributable to a different cultural life-style or not having had educational opportunities.

(v) Intellectual

The assessment of an individual's intellectual functioning must include an assessment of verbal ability and/or performance or nonverbal ability and adaptive behavior. Adaptive behavior is the effectiveness or degree to which an individual meets the standards of personal independence and social responsibility expected of his/her age and cultural group, both in school and away from school. The adaptive behavior of every student being considered must be assessed in some form. With the exception of assessment leading to the determination of mental retardation, minimum assessment of adaptive behavior may consist of a collection of pertinent data drawn from the assessments of emotional/behavioral and sociological factors. Intellectual functioning should be the last factor assessed, since the student's performance in this area should be analyzed and interpreted in light of all the other data.
The measured level of intelligence should be consistent with the assessment of the student's adaptive behavior; if there is wide disparity between the two, further assessment or consideration may be indicated.

(4) Assessment of Educational Performance Levels

The purpose of an assessment of educational performance levels is to enable the admission, review, and dismissal committee to determine whether or not the student has a significant educational need for special education instruction. A significant educational need is defined as a level of educational performance (either academic, developmental, or behavioral) that has been determined by local professional judgment to be significantly lower than that demonstrated by other students in the district or by other children of comparable age.

The assessment of educational performance levels will be the responsibility of certified diagnostic personnel as assigned by the school district. Such personnel may include but are not limited to the educational diagnostician, school psychologist, associate school psychologist, special education counselor, special education visiting teacher, and classroom teacher, provided each person is assigned to perform only those parts of the overall assessment for which he/she is qualified.

The minimum assessment of educational performance levels will consist of individually administered, norm-referenced measures of educational performance that are designed to assess specific areas of educational functioning. This assessment cannot be limited to measures that establish only general levels of academic functioning (i.e., reading, mathematics, and spelling). If only group-administered, norm-referenced measures are available, scores from those instruments may be used provided that other data indicate that those scores are representative of the student's classroom functioning. Additional measures of educational functioning, including developmental scales and behavioral observations, may be included in this assessment.

The assessment of educational performance levels will result in a written report indicating the presence or absence of a significant educational need, including the nature and severity of the need if present. The written report will identify the findings of all assessments, both formal and informal, and will address the degree to which these results might be influenced by the student's educational background, cultural environment, or economic status.

In instances where a student's physical, mental, or emotional disability is so severe as to make norm-referenced assessment
(ii) Performance Scales Cont. | Age Range | Standard Deviation
--- | --- | ---
Wechsler Preschool and Primary Scale of Intelligence (Performance) | 4-6 | 15
**McCarthy Scale of Children's Abilities** | 2 1/2 - 8 1/2 | 16

(iii) Adaptive Behavior Scales | Age Range | Standard Deviation
--- | --- | ---
Adaptive Behavior Inventory for Children | 5-11 | 15
Vineland Social Maturity Scale | 0-5 only | *

*Professional judgment must be exercised in interpreting these instruments in accordance with guidelines provided in the test manuals.

Permission for the use of other tests on a pilot or experimental basis may be obtained through the Commissioner of Education. Suggestions for additions to this list may be submitted to the Commissioner of Education for approval.

(G) Emotionally Disturbed Student

A student who is emotionally disturbed is one who has been evaluated by a licensed and/or certified psychologist, a psychiatrist, or an associate psychologist under the direct supervision of a licensed and/or certified psychologist who determines that the student exhibits one or more of the following characteristics over a period of time and to a degree which adversely affects educational performance:

(i) an inability to learn which cannot be explained by other defined handicapping conditions;

(ii) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers;

(iii) inappropriate types of behavior or feelings under normal circumstances;

(iv) a general pervasive mood of unhappiness under normal circumstances; or
(v) a tendency to develop physical symptoms or fears associated with personal or school problems.

The report of individual assessment from the evaluating professional must specify (1) the type and severity of the emotional disturbance, (2) the functional implications of the disability for situations involving instruction, (3) the degree to which in-school and out-of-school behavior reflects symptoms consistent with the diagnosis, and (4) recommendations for behavioral management in the educational setting.

Reference
Public Law 94-142 Regulations, Section 121a.5(8)

(H) Learning Disabled Student

(i) A student who is learning disabled is one who has been determined by a multidisciplinary team not to be achieving commensurate with his/her age and ability levels. The lack of achievement is found when the student is provided with learning experiences appropriate for his/her age and ability levels in one or more of the following areas: oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematics calculation, mathematics reasoning, or spelling. The term does not include students whose severe discrepancy between ability and achievement is primarily the result of: a visual, hearing, or orthopedic handicap; mental retardation; emotional disturbance; or environmental, cultural, or economic disadvantage.

Reference
Public Law 94-142 Regulations, Section 121a.540-543

(ii) The admission, review, and dismissal committee or multidisciplinary team may determine that a severe discrepancy exists as long as the membership of the team includes at least:

(1) the student's regular teacher; or

if the student does not have a regular teacher, a regular classroom teacher qualified to teach a student of his/her age; or

for a pre-kindergarten child, an individual certified to teach a child of his/her age; and
(II) a person certified or trained in the area of learning disabilities; and

(III) at least one person certified by the Texas Education Agency to conduct comprehensive assessments of intellectual and educational functioning.

At least one team member other than the child's regular teacher shall observe the child's academic performance in a regular classroom setting. In the case of pre-kindergarten, a team member shall observe the child in an environment appropriate for a child of that age.

(iii) A severe discrepancy between intellectual ability and academic achievement is defined as one where the student's assessed intellectual functioning is above the mentally retarded range, but where the student's assessed educational functioning in areas specified is more than one standard deviation below the mean of the district; or where the student's assessed educational functioning in areas specified is more than one standard deviation below the student's intellectual functioning.

When a student's educational performance is below the mean of the district but consistent with the student's assessed intellectual functioning, the student is not eligible to be classified as learning disabled.

(iv) As verification of the team's decision, a written report of the evaluation will be prepared and will include but not be limited to:

(I) the results of an assessment of intellectual functioning showing that the student is not mentally retarded;

(II) the results of an individual educational assessment describing the area(s) of educational achievement in which the student is deficient and substantiating a severe discrepancy between achievement and intellectual ability and the basis for determining each;

(III) a statement of the relevant behavior noted during the observation and the relationship of that behavior to the child's educational functioning;
(IV) a statement of educationally relevant medical findings, if any, either from the screening prior to referral or from subsequent examination if needed; and

(V) a statement that the severe discrepancy is not primarily the result of an emotional disturbance; visual, hearing, or orthopedic handicap; cultural differences; environmental causes; or economic disadvantage.

Each team member will certify in writing that he/she either concurs or dissents with the results of the evaluation as set forth in the written report. If the report does not reflect an individual's conclusions, the dissenting member may provide a separate statement.

(I) Speech Handicapped Student

A student who is speech handicapped is one who has been determined by a certified speech and hearing therapist to have a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment. The report of individual assessment from the specialist must specify the type and severity of the impairment and will include a description of the functional implications of the handicapping condition for the educational process.

If a student receives special education services for a speech handicap only, these services will be classified as instruction. If a student receives other special education instruction and also receives services for a speech handicap, these services will be classified as related services.

(J) Autistic Student

(i) A student who is autistic is one who has been determined by a multidisciplinary team to have disturbances of speech and language, relatedness, perception, developmental rate, and motility. The multidisciplinary team must include:

(I) a licensed psychiatrist or psychologist and

(II) a certified speech therapist and

(III) educational diagnostician or other student evaluation specialists licensed or certified to assess disturbances in the areas listed above.
handicapped student, shall be developed by the admission, review, and dismissal committee according to procedures established by the Commissioner of Education.

Reasonable efforts shall be made to include the student, where appropriate, and the parent or designated parental representative of the student during all admission, review, and dismissal committee deliberations and decisions.

.040 Individual Educational Plan Development

A student receives special education services only after a comprehensive multidisciplinary team, including the parent when possible, has reviewed the data from all three stages of the comprehensive assessment; has determined that the student has a physical/mental/emotional disability establishing eligibility to receive special education services; has determined whether or not the student has an educational need significant enough to merit special education instruction; has provided an individual educational plan complete with statements of short-term objectives; long-range goals, instructional and related services to be delivered; and has provided for an educational placement in the least restrictive educational environment.

All decisions regarding the educational program of a child referred for special education consideration will be made by an admission, review, and dismissal committee.

The admission, review, and dismissal committee must make its decision regarding students referred for the first time within 30 calendar days of regular work responsibilities (exclusive of school holidays) from time of the referral committee report.

(I) The Admission, Review, and Dismissal Committee Responsibilities

(A) Each district or special education cooperative must establish at least one admission, review, and dismissal committee to perform the following functions within the special education instructional program:

(i) Review all available data. The data include:

(1) written report(s) of all three stages of individual assessment,

(II) current information or assessment data provided by the parent, and

(III) any information or assessment data from other school personnel.
(ii) ensure that national origin minority group students (or linguistically different students) are not assigned to special education on the basis of criteria which were developed solely on the command of the English language;

(iii) ensure that students are not placed in special education if the only deficiencies identified are directly attributable to a different cultural life-style or not to having had educational opportunities or not to having achieved from previous educational experiences;

(iv) determine and document that the student meets the eligibility criteria;

(v) develop the individual educational plan or modify the existing plan;

(vi) make appropriate instructional placement designation;

(vii) review all special education assignments annually to determine continuation, change, reappraisal, or termination; and

(viii) develop an individual written summary of the deliberations, findings, and recommendations of each meeting of the committee. Each summary documents all assessment data considered, alternatives reviewed, any additional services discussed, and additional recommendations of individual committee members; includes the date, the names, the positions, and the signatures of the persons participating in each meeting; and is included in each student's eligibility folder.

(B) For the pregnant student, the admission, review, and dismissal committee:

(i) determines that the student requested special education services,

(ii) verifies that there is a medical diagnosis of the condition,

(iii) reviews current grade level(s), courses or subjects, and student programs,

(iv) specifies in the individual educational plan the instruction and related services to be provided by special education,

(v) estimates a time line for returning the student to the regular program, and
The individual educational plan developed by the admission, review, and dismissal committee for each student includes:

35.72 CHILD-CENTERED EDUCATIONAL PROCESS (continued)

(A) A statement of the student's present competencies taken from the assessment data. This brief statement includes:

(i) the competencies of the student in academic content areas. If the student is functioning at pre-academic levels, there must be a statement of developmental skills.

(ii) the physical abilities and disabilities exhibited by the student which would affect his/her participation in instructional settings and/or in physical education and leisure time activities.

(iii) the behaviors demonstrated by the student which affect his/her educational programming.

(iv) the skills demonstrated by the student (particularly at the secondary level) which may be prerequisite to participation in vocational education.

(B) A statement of annual goals and short-term instructional objectives. All goals and objectives are stated within the context of a planned, sequential curriculum and with consideration for the student's needs in both content and developmental areas.

Annual goals are broad statements of the highest educational priorities identified for the student for the current program year.

Short-term instructional objectives are measurable intermediate steps designed to lead the student to achievement of the annual goals. While these objectives will be more specific than the annual goals, it is not intended that they be as specific as the teacher's daily or weekly lesson plans for the student. The statement of each objective will be accompanied by a designation of the person or persons responsible for implementing activities designed to help the student achieve the objective and may include a statement of any special materials, resources, or methods which should be used in achieving the objective.

(C) A statement of the specific educational services to be provided for the student, including regular education, special education, and related services. The services provided will be directly related to the stated goals and objectives. Services will be
provided within the least restrictive environment appropriate for the student.

(D) A statement of the amount of time to be spent in each setting, the projected dates for initiation of services, the anticipated duration of the services, and the justification for the provision of each service.

(E) A statement of the schedules and criteria for evaluating each short-term objective.

(F) Signatures of the committee members present and an indication of each member's consent or dissent with the decisions. Decisions must be supported by at least a majority of the required membership of the admission, review, and dismissal committee.

(G) For the pregnant student, the individual educational plan addresses any special provisions or modifications of the regular program needed as a result of the pregnancy and identifies the instruction and related services to be provided through special education.

(H) For the student in residential placement, the individual educational plan will specify the special education instruction time per student per day decided on an individual basis by the admission, review, and dismissal committee. The student's individual educational plan includes, as necessary, programming to be provided within the residential component in support of the approved educational program.

5. Educational Program Placements

The educational program placement may include:

(A) programs operated by the district (These programs include regular classrooms, resource, self-contained, itinerant, and other approved instructional options);

(B) programs operated cooperatively with other districts;

(C) programs operated by other districts, approved regional education program services, and regional day school for the deaf programs;

(D) contracts with approved nonpublic schools, where the student resides with the parent or guardian on a day-by-day basis;
APPENDIX D: SAMPLES OF INDIVIDUAL COPING INVENTORY PROFILES
COPING INVENTORY

A MEASURE OF ADAPTIVE BEHAVIOR

SHIRLEY ZEITLIN

RESEARCH EDITION
**ADAPTIVE BEHAVIOR SUMMARY**

**CHILD'S NAME**  Jo Ann  (#023)  
**DATE**  10-5-81

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**SELF SCORE**  2.9  
**ENVIRONMENT SCORE**  3.1

Sum of SELF SCORE and ENVIRONMENT SCORE  6.0

**ADAPTIVE BEHAVIOR INDEX**  3.0

**WISC-R**  
**VIQ:** 78  
**PIQ:** 95  
**FSIQ:** 85

**COPING PROFILE**

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**Key:**  
Self  
Env
### Most Adaptive Behaviors

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<th>Score</th>
<th>Behavior</th>
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<td>Has good vocabulary — uses it.</td>
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<td></td>
<td>Can communicate disagreement &amp; feelings of anger to others.</td>
</tr>
<tr>
<td>S</td>
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<td></td>
<td>Asks for help when she needs it.</td>
</tr>
<tr>
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<td>5</td>
<td></td>
<td>Initiates action to get needs met.</td>
</tr>
<tr>
<td>S</td>
<td>5</td>
<td></td>
<td>Stays with task until completed.</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td></td>
<td>Knows what is expected; behaves accordingly.</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td></td>
<td>Is aware of feelings of others.</td>
</tr>
</tbody>
</table>

**Goal #1. To improve self-concept**

**Objective #1.** Jo Ann will be more self-accepting.

**Strategy:** Jo Ann could be allowed to help other students with activities that she is good in.

**Objective #2.** Jo Ann will be more independent and self-reliant.

**Strategy:** Jo Ann could chart her social progress daily with emphasis on "beating her own record."

### Least Adaptive Behaviors

<table>
<thead>
<tr>
<th>Category</th>
<th>Dimension</th>
<th>Score</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>1</td>
<td></td>
<td>Has difficulty handling the new &amp; different.</td>
</tr>
<tr>
<td>S</td>
<td>1</td>
<td></td>
<td>Cannot compensate for disabilities or problems.</td>
</tr>
<tr>
<td>S</td>
<td>1</td>
<td></td>
<td>Cannot generalize to new situations.</td>
</tr>
<tr>
<td>S</td>
<td>1</td>
<td></td>
<td>Has low confidence in her ability.</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td></td>
<td>Excessively dependent.</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td></td>
<td>Is not self-reliant; seeks constant reassurance.</td>
</tr>
</tbody>
</table>

**Goal #2. To increase Jo Ann's range of coping strategies—particularly, for new and different situations**

**Objective #1.** Jo Ann will try new ways of doing routine tasks.

**Strategy:** Reward for compliance.

**Objective #2.** Jo Ann will work more independently.

**Strategy:** Reward for work done without asking for teacher's reassurance that she is doing her work correctly.
CHILD'S NAME: Rod. DATE: 10-5-81.

**COPING - SELF**

<table>
<thead>
<tr>
<th>Category</th>
<th>Raw Score</th>
<th>Number Scoreable Items</th>
<th>Converted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCTIVE</td>
<td>23</td>
<td>12</td>
<td>1.9</td>
</tr>
<tr>
<td>ACTIVE</td>
<td>18</td>
<td>6</td>
<td>3.0</td>
</tr>
<tr>
<td>FLEXIBLE</td>
<td>27</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>9.4</td>
</tr>
</tbody>
</table>

**Self Score**: 3.1

**COPING - ENVIRONMENT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Raw Score</th>
<th>Number Scoreable Items</th>
<th>Converted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCTIVE</td>
<td>34</td>
<td>12</td>
<td>2.8</td>
</tr>
<tr>
<td>ACTIVE</td>
<td>22</td>
<td>6</td>
<td>3.7</td>
</tr>
<tr>
<td>FLEXIBLE</td>
<td>13</td>
<td>6</td>
<td>2.2</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>8.7</td>
</tr>
</tbody>
</table>

**Environment Score**: 2.9

Sum of Self Score and Environment Score: 6.0

**Adaptive Behavior Index**: 3.0

**COPING PROFILE**

- **Non-Productive**
- **Passive**
- **Rigid**
- **Productive**
- **Active**
- **Flexible**

Key: Self - En
### Most Adaptive Behaviors

<table>
<thead>
<tr>
<th>Category</th>
<th>Dimension</th>
<th>Rating</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>A</td>
<td>5</td>
<td>Can use self-protective devices to control the environment.</td>
</tr>
<tr>
<td>E</td>
<td>P</td>
<td>5</td>
<td>Can communicate to others feelings of anger, both verbal &amp; nonverbal.</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>5</td>
<td>Plays with other children.</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>5</td>
<td>Child uses gross &amp; fine motor skills competently.</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>5</td>
<td>Effective energy level.</td>
</tr>
</tbody>
</table>

### Least Adaptive Behaviors

<table>
<thead>
<tr>
<th>Category</th>
<th>Dimension</th>
<th>Rating</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>P</td>
<td>1</td>
<td>Does not know how to handle new problems.</td>
</tr>
<tr>
<td>S</td>
<td>P</td>
<td>1</td>
<td>Does not respond to external control.</td>
</tr>
<tr>
<td>S</td>
<td>A</td>
<td>1</td>
<td>Very low frustration tolerance.</td>
</tr>
<tr>
<td>S</td>
<td>F</td>
<td>1</td>
<td>Cannot mobilize resources in high stress situations.</td>
</tr>
<tr>
<td>E</td>
<td>P</td>
<td>1</td>
<td>Does not consider effects of his behavior on others.</td>
</tr>
<tr>
<td>E</td>
<td>P</td>
<td>1</td>
<td>Easily discouraged, gives up often &amp; is moody.</td>
</tr>
</tbody>
</table>

(An ABI of 3.0 indicates a developing competence with effective coping in some situations, but not in others. Dimension scores range from 1.9 to 4.5 which is a fairly wide range.)

**Goal #1.** To learn to use personal resources more effectively to meet own needs

**Objective #1.** Rod will respond to external control

**Strategy:** Allow Rod to assist in designing rules for himself that he is willing to follow and reward for consistency.

**Objective #2.** Rod will learn to withstand minor frustrations

**Strategy:** Break tasks into units and reward completion of units.

**Goal #2.** To learn to accept responsibility for actions

**Objective #1.** Rod will be less impulsive

**Strategy:** Provide cueing system for Rod to use when he must wait; e.g., teach to count to 10 slowly.

**Objective #2.** Rod will be aware of the effect of his behaviors on others.

**Strategy:** Use Rod's high energy level and good motor skills to teach participation in team sports.
BIBLIOGRAPHY

Books


Meeker, M. N., The Structure of Intellect, Columbus, OH., Charles E. Merrill, 1969.


Articles


Dean, R. S., "Factor Structure of the WISC-R with Anglos and Mexican-Americans," Journal of School Psychology, XVIII (Fall, 1980), 234-238.


**Publications of Learned Organizations**


**Public Documents**


**Unpublished Materials**
