EXPERT JUDGMENTS IN ASSESSMENT OF LEARNING DISABLED CHILDREN

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CHAPTER I

SELECTED REVIEW OF THE LITERATURE

Introduction

The entire field of learning disabilities is one fraught with complexity and ambiguity (Mercer, 1979). One particularly complex issue is that of diagnosis of a child as learning disabled. Consequently, children suspected to be learning disabled are subjected to a multitude of assessment instruments (Reid & Hresko, 1981). A variety of professional people are usually involved in this complex task of assessment and diagnosis of a child as learning disabled. Little is known about the professional's frame of reference or its interaction with different variables in the diagnostic process.

Additionally, the accepted definition of learning disabilities is based on an educational model and focused on academic deficits. Standardized testing instruments are used in the diagnostic process. The complexity of the diagnostic task is understood when one attempts to work with such instruments and other variables in an organized fashion. The focus of this study is threefold: one, to determine differences among professional groups in their

diagnostic perceptions of learning disabled children; two, to see how their perceptions change from simple to complex sets of information; and three, to examine their self-evaluations in regard to judgment certainty and weighting of various factors.

Definitional and Theoretical Issues

The team of professionals begins with the classroom teacher who observes the child's behavior. It then involves a psychometrist who conducts intellectual and academic testing. It depends upon the learning disabilities teacher who designs academic intervention. The team frequently includes a psychologist who deals with emotional, motivational, or social problems.

The orientation of the professional--medical, psychological, or educational--often dictates the definition of learning disabilities used and, hence, the professional's perception of the child's probable eligibility for a learning disabled (LD) category. Terms describing cerebral dysfunction and brain damage typify the medical model. Psychological definitions rely on more readily observable behaviors and the interaction of social and emotional factors. Educational definitions consider academic deficits and remediation in addition to observed behaviors.

The complexity of the diagnostic task may be better understood when one considers the variety of causal theories regarding the etiology of learning disabilities described in

the literature. Deprivational, behavioral, neurological, genetic, and environmental reasons have been the focus of various etiological stances (Hallahan & Kauffman, 1976). Traditional approaches, in addition to focusing on neurological impairments (Cruickshank, 1967; Myklebust, 1973) also include perceptual dysfunction (Frostig, 1976; Kephart, 1973) and psycholinguistic dysfunction (Kirk, 1971).

Another prominent stance is that regarding LD children as exhibiting a maturational lag or developmental lag (Bender, 1968; Lerner, 1971; Koppitz, 1971). LD children are seen as developmentally immature in brain functioning which is frequently manifested in perceptual motor integration and development as well as emotional immaturity (Koppitz, 1971). In an extensive treatment of learning disabilities, such functioning is viewed to be quite similar, if not identical, to a developmental delay in selective attention (Ross, 1976). General developmental immaturity both cognitively and in personality may well affect one's ability to learn in a structured, active fashion (Torgesen, 1977). Developmental/maturational lag is a frequently used descriptor. A recent example of its use examines cognitive and behavioral developmental delays of LD children within a Piagetian framework (Adams, Lerner, & Adamson, 1979). Viewing the LD child as exhibiting a developmental lag is the framework taken in this study.

The complexity of the diagnostic task may also be better understood when one considers the diversity and

ambiguity intrinsic in definitions of the term, learning disability. The term was first introduced by Samuel Kirk in 1963 to describe children who exhibit "disorders in development, in language, speech, reading, and associated communication skills needed for social interaction" (Mercer, 1979, p. 26).

A notable federal law, the Education for All Handicapped Children Act (P.L. 94-142) was passed in November of 1975. This law included learning disabilities as one of 12 handicapping conditions along with such others as visually handicapped, orthopedically impaired, speech impaired, emotionally disturbed, and mentally handicapped. The definition of learning disabilities, as described in regulations resulting from P.L. 94-142, and as used by the State Department of Education, is stated as follows:

> Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, or mental retardation, or of environmental, cultural, or economic disadvantage (USOE, 1977, p. 65083).

It is apparent that the preceding definition is quite broad in scope and reflective of the diffuse nature of theories of learning disabilities. In fact, this definition, rather than simplifying diagnosis, compounds the

problem with its diversity. Consequently, the State Department of Education has evolved essential determining criteria for specific learning disabilities which include:

1. The child does not achieve commensurate with his/her age and ability levels in one or more of the areas listed when provided with appropriate learning experiences; and

2. A child has a severe discrepancy between achievement and intellectual ability in one or more of the following areas: oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematics calculation, or mathematics reasoning.

The definition of severe discrepancy used by the State Department of Education is based on the following criteria:

For children who are in kindergarten, first, or second grade or of pre-school age, eligibility for placement in a program for children with specific learning disabilities shall be made by evaluation team decision.

For children who have been in school three or more years, the collected data should be evaluated by the evaluation team to determine if actual achievement in one or more of the seven previously cited areas is fifty percent or more below expected achievement. Expected achievement must be determined by considering the child's ability as measured by recognized valid nondiscriminatory instruments in relationship to the number of years the child has been in school.

Two important characteristics emerge from the definition and determining criteria. One is the very heterogeneous nature of a LD population. Students may exhibit problems in one area and not in another as well as demonstrate a range of combinations (Mercer, 1979). Two, the defining criteria are characterized by observed lack of skills, as measured by academic performance, rather than what, in fact, constitutes learning disabilities. If a child exhibits a severe discrepancy between expected and actual achievement in one of seven academic areas and does not belong in any of several exclusion categories, then he may be considered learning disabled. In essence, a population of learning disabled children is a heterogeneous group, of normal or better intellectual ability, defined by a lack of skills related to achievement, and described as demonstrating a discrepancy in academic functioning.

Though many subtle differences may exist regarding such a general definition of learning disabilities, five major points are widely accepted. The learning disabled child exhibits: (1) academic retardation with normal intellectual abilities, (2) an uneven pattern of development, (3) possible central nervous system dysfunction, (4) learning problems not due to environmental disadvantage, and (5) problems not due to mental retardation or emotional disturbance (Hallahan & Kauffman, 1976; Yussen & Santrock, 1978).

Diagnostic Instruments

Considering academic retardation, a child's current and

potential performance may be informally observed by noting discrepancy between IQ score and standardized achievement test scores. More precisely, several formal methods exist for determining a child's expected level of performance. Consequently, children suspected to be learning disabled are subjected to a multitude of assessment instruments (Reid & Hresko, 1981). A complete diagnostic battery--which includes measures of intellectual ability, general academic achievement, special subject areas, and visual motor integration--is administered initially when a child is suspected of having a learning disability.

First, consider the most commonly used intelligence measure--the Wechsler Intelligence Scale for Children-Revised (WISC-R). A multitude of studies have been conducted using the WISC-R with a learning disabled sample for diagnosis and intervention (Stevenson, 1980), with children of superior intelligence (Schiff, Kaufman & Kaufman, 1981), and relative to reading disorders (Rosner, Abrams, Daniels, & Schiffman, 1981). Verbal IQ and Performance IQ differences as well as subtest scatter have been examined by Kyckman (1981); Rosner, Abrams, Daniels, and Schiffman (1981); Smith Coleman, Dokecki, and Davis (1977); and Cohen and Netley (1978). Ross (1976) discussed the WISC-R in relationship to brain dysfunction. Others use it to distinguish LD and emotionally disturbed children (Dean, 1978; Coolidge, 1983). On the other hand, a review of 24

studies of LD students and the WISC-R concluded that WISC-R profiles may not be useful for differential diagnosis of learning disabled students (Dudley-Marling, Kaufman & Tarver, 1981).

A review article focusing on the WISC-R and learning disabilities assessment summarizes the current state of the art in LD assessment (Kaufman, 1981). Two major points require mention. One, the WISC-R has clearly emerged as the instrument of choice for the assessment of intelligence in school-age children. Two, the construct validity of the Verbal and Performance Scales has been supported by numerous factor analytic studies (Kaufman, 1975; Blaha & Vance, 1979; Kaufman, 1981). Formal procedures for diagnosing a child as learning disabled were recommended by Brumback and Staton (1983). These include WISC-R administration with a determination of Verbal IQ and Performance IQ differences and their direction.

A second type of assessment instrument used evaluates achievement. Two widely used individually administered measures are the Wide Range Achievement Test (WRAT) (Breen & Prosse, 1982; Cullen, Boersman, & Chapman, 1981) and the Peabody Individual Achievement Test (PIAT) as well as group achievement tests such as the California Achievement Test (CAT). These tests, along with more specialized subject area and ability tests, are used to establish levels of academic performance both in standard scores and grade level equivalents (Mercer, 1979). Though the objective analysis

of achievement-aptitude discrepancies in LD classification is a debated topic (Hanna, Dyck, & Holen, 1979), the concept is mandated and used extensively.

A third area of assessment is that of perceptual and perceptual-motor integration. Tests used regularly are the Illinois Test of Psycholinguistic Abilities, the Wepman Auditory Discrimination Test, and the Bender Visual-Motor Gestalt Test. Larsen, Rogers, and Sowell (1976) found in one study that of these three instruments only the Bender Visual-Motor Gestalt Test differentiated between the normal and learning disabled groups. Koppitz (1971) reported a five-year follow-up study of children with learning disabilities and has continued her work in this area (1975, 1977). Deficiencies in perceptual abilities are extensively reported relative to LD populations (Hallahan & Cruickshank, 1975).

A combination of instruments is often examined in relationship to one another or to other variables. The PIAT Reading tests were among those of several used by Harber (1979) in differentiating LD and normal children. Smith and Rogers (1978) used the WISC-R and PIAT among other instruments in studying the reliability of standardized instruments when used with learning disabled children. Oakland (1983) examined the influence of IQ, adaptive behavior, socioeconomic status (SES) and race-ethnicity on reading and math achievement and found the variance accounted by the four variables highly significant for both

reading and math. The amount of variance associated with race-ethnicity and SES was nonsignificant.

Emotional and Behavioral Implications

In the affective area Koppitz (1971) stated that most LD pupils also showed behavior problems in addition to learning disabilities. Certainly the characteristics which interfere with a child's functioning within the academic sphere will be operable in other aspects of his/her life. Any deficit which impedes a child's progress in school is likely to interfere with social, emotional, and actional situations, thereby facilitating great amounts of frustration. Frustration and failure are often well known and part of a vicious cycle for the learning disabled child (Cruickshank & Hallahan, 1975) who frequently has negative feelings of self-worth and an abnormal pattern of social and emotional development (Kirk, Kliebhan, & Lerner, 1978). The association of learning disorders and behavioral problems is frequently observed. Wright (1974) found that 51% of the students referred to the school counselor had learning problems. Yet little is known about the relationship between affective responses and academic performance of learning disabled children (Smith, 1978).

One study examined the relationship between learning disabilities, hyperactivity, distractibility, and behavioral problems (Silver, 1981) by assessing the incidence of these manifestations in three populations (learning disabled,

hyperactive, and emotionally disturbed). A clinical relationship was found between learning disabled children and those labeled hyperactive. Eighty-three per cent of the LD children and 85% of the hyperactive and/or distractible were found to be emotionally disturbed presumably due to the failures and frustrations experienced (Silver, 1981). Other studies (Cullinan, Epstein, & Dembinski, 1979; Cullinan, Epstein, & Lloyd, 1981) have found that learning disabled children were significantly more deviant (maladjusted) than normal children.

Ecological factors in learning disabilities were explored by Mayron (1978). Environmental causes (including chronic anxiety) of learning and behavior problems were contrasted with those arising from genetic or congenital causes. He views recognition and remediation of these problems as important to diagnosis and treatment of the learning difficulty (Mayron, 1978).

Anxiety was discussed within a theoretical conceptual framework for teacher's enlightenment by Kaplan (1970). He dealt with the relationship between anxiety and learning. All learning deficiencies do not look alike, nor do two which appear the same represent the same constellation of forces operating on and within the child. Brumback and Staton (1983) recommended that a diagnostic evaluation for learning disabilities should routinely include a search for childhood depressive illness.

A broader scope was taken by Harbin (1978) in a discussion of ecological assessment and intervention for LD students. Her recommendations included: assessing the uniqueness of the child (including behaviors), assessing influences within the school, and assessing influences within the home. The latter two areas were viewed as being quite relevant, though difficult to assess, and impactful on the child, especially the expectancies conveyed to him/her by both home (Friedman, 1973) and school.

Some of the expectancies emanating from the school were examined by Mooney and Algozzine (1978). Behaviors characteristic of emotional disorders were rated by teachers as being more disturbing than those characteristic of learning disabilities.

One feature that seems crucial to a child's academic achievement is his/her affective response to the label of LD and subsequent remedial efforts. Quite probably most LD children have operated for sometime within an environment which was inappropriate for their capabilities--an academic mismatch (Murphy, 1956; Ziegler, 1981). Such a mismatch is characterized by various adaptive reactions by the child. These reactions include anger, fear, frustration, withdrawal, regression, neuroticism, perseveration, acting-out, and low self-esteem (Gardner, 1971).

Demographic Characteristics

Demographic information is understood to be important

in the diagnostic process. Reid and Hresko (1981) state that the first step after assembling test data is to begin looking at the most fundamental data: age, sex, school placement, language usage, and family situation.

Clearly age is an important factor with age and sex differences being found by Cullinan, Epstein, and Lloyd (1981). Age at time of diagnosis was important to Adelman (1979). In his study of assessment practices the mean age of first diagnosis was 8.4.

Sex differences are generally acknowledged with a much higher frequency of males than females being diagnosed as learning disabled. Ross (1976) noted the "usual" preponderance of males (244 males and 60 females) in a study by Owen, Adams, Forrest, Stolz and Fisher (1971). Sex differences of severely learning disabled children were examined in 27 girls and 75 boys by Ryckman (1981). He suggested socio-emotional factors as an explanation for the differences. Sex differences in response to school failure were studied in 222 children by Caplan and Kinsbourne (1974) based on the general acceptance of more males than females being referred and on differential responses by sex to failure and aggression.

As mentioned earlier race-ethnicity was one of the variables used by Oakland (1983) in his study. Ethnic composition was one variable reported by Hall and Keogh (1978). Harber (1980) discussed issues in assessment relative to culturally different children and suggested

appropriate placement for these children.

Some general considerations of the assessment process are of interest. Schleiper (1982) maintained that the normative approach is both successful and acceptable in diagnosis. A focus on diagnostic accuracy was one aspect in a treatise on ethical perspectives by Adelman (1976).

Statement of the Problem

A wealth of information is available in the literature regarding learning disabled children, their diagnosis, and their resultant functioning. It is professionally recommended and legally mandated that a child suspected of being learning disabled undergoes extensive testing with a complete test battery. This battery requires both an intelligence test and achievement tests and often includes tests of visual motor functioning or other special instruments.

Obviously, a great deal of information regarding a child and his/her current level of functioning is available after the test battery results are scored and interpreted. The current question dealing with this data focuses on various sources of information used in evaluating a child for possible labeling and placement in a learning disabled program. The sources of information available are: demographic (age, sex, race, and SES on occasion), current grade placement, intellectual (IQ scores, usually the WISC-R with Performance IQ and Verbal IQ, and 10-12 sub-test scale

scores), achievement (various achievement test scores in reading recognition, reading comprehension, mathematics, and spelling), visual motor integration, and academic functioning which reflects grade level discrepancies in seven major areas. Certainly much information is summarized as the result of an educational evaluation. How to deal with this information may be thought of as a complex task in human problem solving.

Two means are available to approach the task of examining how the various pieces of data are used by experienced professionals within a psychological perspective. The first would be an information-processing approach which would involve looking at various verbal behaviors of raters sequentially and inferring mental processes. In contrast, the current focus is on the pieces of information to which a professional pays particular attention in making the decision to diagnose a child as learning disabled. This process is similar to that of a physician dealing with physical processes in evolving a medical diagnosis (Elstein, Shulman, & Sprafka, 1978). Clearly, data are present which reflect a child's level of functioning. Are only selected types of data repeatedly used to make a diagnosis or does the judge utilize all available information equally?

A second complex problem is that of predictability. Extensive literature exists which focuses on learning disabilities, the vast majority of which deals with diagnostic issues (e.g., Harber, 1979; Cohen & Netley, 1978;

Kauffman, 1981; Breen & Prasse, 1982). Although the three year re-evaluation of LD children is legally mandated, only two descriptive follow-up studies were found which examined current status of LD pupils (Koppitz, 1971; Leone, Lovitt, & Hansen, 1981), and no studies have been found which deal with the issue of predicting a child's performance three years later. Given the current zeitgeist in expecting objective measures to demonstrate therapeutic and/or remedial efforts, it seems most appropriate to examine diagnostic assessment information for its predictive capacity.

A final problem is that of the decision-making process, particularly, surety of judgments. Given the various theoretical and professional orientations available as well as the wealth of literature in existence, consistently sound judgments would appear possible. However, the variety of disciplines involved operate from different orientations. It seems appropriate to investigate professional judgments in their perceived certainty.

The general goal of this research was to gain information in a structured fashion which would be useful to practitioners in the field of learning disabilities. Specific questions which were examined include: whether certain types of data are used more in making a learning disabilities diagnosis, whether diagnostic judgments change with vignettes as opposed to individual pieces of information, whether predictive judgment changes with vignettes as opposed to individual pieces of information, and whether

various groups of master teachers and professionals differ in their diagnostic and predictive judgments when evaluating for learning disabilities. An additional area which was explored focused on self-evaluations, specifically, whether the various professional groups differed in the certainty of their judgments, whether their certainty changed from single pieces of information to vignettes and whether their category weightings differed significantly.

CHAPTER II

METHOD

Subjects

The subjects consisted of four different groups of professionals with 20 subjects in each group (N=80). One group was experienced regular classroom teachers who were enrolled in graduate level coursework leading to a master's degree in guidance and counseling. A second group consisted of learning disabilities teachers with a minimum of two years experience, at least one of which was with learning disabled children. A third group was composed of psychometrists who were employed by a Regional Educational Service Center (RESC) or a local school district to provide psychometric testing. The fourth group consisted of doctoral level clinicians who had particular interest in children and/or learning disabilities. All subjects had a minimum of two years experience in their area and one in their specialty with some experience levels ranging up to fifteen years.

Materials

The task was introduced with a sheet on which was a two paragraph explanatory statement. (See Appendix A for an

example.) The stimuli for Part I consisted of 26 pieces of information (13 pairs) presented in booklet form to be viewed one at a time. These single pieces of information were judged by each rater on three questions. These questions asked for (a) the likelihood of that child's being classed as learning disabled, (b) a prediction of the child's obtained grade level three years in the future, and (c) a self-evaluation of the rater's certainty of decision on each piece of information. (See Appendix A for a representative example.) The stimuli for Part II consisted of 32 vignettes of children who were to be evaluated for the presence of a learning disability severe enough to warrant special placement. The vignettes were written to systematically vary the pieces of information to be presented at one time. One-fourth of this information was presented successively on eight separate sheets of paper. (See Appendix A for an example.) The final portion of the task, Part III, was a self-evaluation on which each of eleven variables was rated on a seven point scale by each subject. Personal information to determine groupings and levels of professional experience was obtained on this form. (See Appendix A for a representative example.)

For Part I the initial 26 pieces of information consisted of thirteen independent variables at two levels each. These variables were introduced by two levels each of four variables: age (8½ and 11½), race (Black and Caucasian), sex (male and female), and grade level (third and sixth) to

acquaint the subjects with the task and to assist in forming a response set. The fifth variable was a statement about social-emotional functioning (whether appropriate or problematic). The sixth variable pair was WISC-R Full Scale IQ scores (108 and 94). The seventh and eighth variable pairs were Performance IQ (PIQ) scores and Verbal IQ (VIQ) scores at two different levels with and without discrepancies (VIQ of 109 and PIQ of 105, VIQ of 97 and PIQ of 92; VIQ of 90 and PIQ of 105, VIQ of 100 and PIQ of 117). The ninth variable pair was Bender Visual Motor Gestalt scores (8-0 to 8-5 age range and 6-5 to 7-0 age range). The tenth and eleventh variable pairs were Peabody Individual Achievement Test (PIAT) standard scores in Reading (104 and 82) and Mathematics (105 and 79). Additional information presented as the twelfth and thirteenth variable pairs were grade levels in Mathematics Calculation (+0.1 and -1.2) and Basic Reading Skills (+0.2 and -1.5) expressed as a grade level discrepancy which co-varied with the PIAT scores.

For Part II the 32 vignettes each described an 8½ year old Caucasian male finishing the third grade who was currently functioning within the normal range of intelligence. Selected portions of the identical information presented earlier in single pieces were systematically combined in a mixed design. The variables of PIQ-VIQ with and without discrepancy, the presence or absence of social and emotional problems, and Bender scores were manipulated within subjects. The variables of Reading and Mathematics PIAT scores

were manipulated between subjects. The grade level discrepancy in reading and mathematics covaried with achievement test scores. Each subject was presented with eight vignettes to rate.

Part III of this study was labeled "Self-Evaluation." Subjects were asked to evaluate their decisions in rating the information contained in Parts I and II. The eleven variable names of age, sex, grade level, IQ scores, IQ discrepancy, Bender scores, social-emotional functioning, math standard scores, reading standard scores, math grade level discrepancy, and reading grade level discrepancy were listed in a column.

The task was for the subjects to answer three questions after reading each of the 26 individual pieces of information in Part I and after reading each of the eight vignettes presented in Part II. The same three questions were asked 34 times. The first question was: What is the likelihood that this child is learning disabled? Please rate on the scale: (Little) 1, 2, 3, 4, 5, 6, 7, 8, 9 (Much). The second question was: What would you predict as this child's grade level discrepancy (+, 0, -) three years from now? Please rate on the following scale: -3.0, -2.5, -2.0, -1.5, -1.0, -0.5, 0.0, +0.5, +1.0. The third question was: How certain are you of your judgment on the ratings? (Uncertain) 1, 2, 3, 4, 5, 6, 7 (Very Certain). For Part III the subjects were asked: How much weight did you give

to each of these variables? They responded by circling a number on a 7-point scale.

Procedure

Subjects were asked to use their professional knowledge and experience in evaluating and subsequently rating the stimuli. They were asked to read the various pieces of information in the order presented (booklets first) and then to respond immediately to each of the three questions by circling a number. They then immediately read the eight vignettes in paragraph form in which a portion of the identical information presented earlier had been arranged into various combinations. They were asked to respond to each vignette with the same three questions regarding the likelihood of the child's being learning disabled, predicting the child's grade level discrepancy (+, 0, -) in three years, and rating the certainty of their decisions. Finally, they were asked to complete the self-evaluation form which included the variables to be weighted and the questions about professional background and experience (for group placement).

CHAPTER III

RESULTS

The data were analyzed in three separate procedures due to the structure of the stimulus materials. The first set of procedures dealt with the 26 individual pieces of information. These data were arranged into 13 pairs (See Appendix A for a listing) and analyzed with paired t-tests. Since multiple t-tests were to be performed on the data, Dunn's procedure was used to provide experiment-wise protection and to establish a critical α level. Any t-tests which obtain $p<.0003$ are then significant for $p<.05$. For the first question, "What is the likelihood that this child is learning disabled?" the subject group of classroom teachers obtained significance on the variable of social-emotional functioning, $t = -5.98$, $p<.0001$, and approached significance on the variable of VIQ-PIQ discrepancy, $t = 4.02$, $p<.0007$. Responding to the same question, the subject group of learning disabilities teachers obtained significance on the variables of sex, $t = 5.84$, $p<.0001$, social-emotional functioning, $t = -4.81$, $p<.0001$, PIAT mathematics, $t = -5.16$, and reading, $t = -6.02$, scores, $p<.0001$, $p<.0001$, and grade level discrepancy in reading, $t = -7.62$, $p<.0001$. Still responding to the same question the subject group of

psychometrists obtained significance on the variables of PIAT scores in reading, $t = -4.72$, $p<.0001$, and grade level discrepancy in reading, $t = -6.66$, $p<.0001$, and approached significance on the variable of social-emotional functioning, $t = -4.33$, $p<.0004$. The final group responding to the same first question was doctoral level psychologists and educators who obtained significance on the variables of sex, $t = 4.68$, $p<.0002$, social-emotional functioning, $t = -5.96$, $p<.0001$, PIAT math scores, $t = -5.11$, $p<.0001$, PIAT reading scores, $t = -5.60$, $p<.0001$, grade level discrepancy in math, $t = -4.87$, $p<.0001$, and grade level discrepancy in reading, $t = -.7.86$, $p<.0001$. (See Table 1 in Appendix B for a summary of these results.)

For the second question, "What would you predict as this child's grade level discrepancy three years from now?" the classroom teachers group obtained significance on the variables of social-emotional functioning, $t = 5.78$, $p<.0001$, full scale IQ differences, $t = 5.57$, $p<.0001$, PIAT math scores, $t = 4.90$, $p<.0001$, and grade level discrepancy in math, $t = 5.44$, $p<.0001$. Significance was approached with the variables of higher-lower PIQ-VIQ without discrepancy, $t = 4.10$, $p<.0006$, and grade level discrepancy in reading, $t = 3.95$, $p<.0009$. The group of learning disabilities teachers obtained significance on the variables of race, $t = -4.35$, $p<.0003$, sex, $t = -5.15$, $p<.0001$, social-emotional functioning, $t = 8.74$, $p<.0001$, higher-lower levels of PIQ-VIQ without discrepancy, $t = 4.53$, $p<.0002$,

PIAT math scores, t = 5.98, $p<.0001$, PIAT reading scores, t = 6.28, $p<.0001$, grade level discrepancy in math, t = 6.52, $p<.0001$, and grade level discrepancy in reading, t = 10.51, $p<.0001$. The group of psychometrists in responding to this question obtained significance on the variables of social-emotional functioning, t = 6.42, $p<.0001$, PIAT reading scores, t = 8.26, $p<.0001$, math grade level discrepancy, t = 5.77, $p<.0001$, and reading grade level discrepancy, t = 10.64, $p<.0001$. The doctoral group obtained significance on the variables of social-emotional functioning, t = 8.64, $p<.0001$, full scale IQ level, t = 4.86, $p<.0001$, higher versus lower level PIQ=VIQ without discrepancy, t = 4.68, $p<.0002$, as well as both PIAT math, t = 5.92, and reading, t = 5.78, scores and math, t = 9.28, and reading, t = 9.14, grade level discrepancies (all four $p<.0001$). (See Table 2 in Appendix B for a summary of these results.)

For the third question, "How certain are you of your judgment on the ratings?" no levels of significance were obtained by any of the four groups of subjects on any of the thirteen pairs of variables. Of the 52 t-tests only four even approached significance at the .05 level (disregarding Dunn's procedure). Interestingly, eight of the tests yielded t-scores of 0.00 (p=1.0). (See Table 3 in Appendix B for a summary of these results.)

The second set of procedures dealt with the stimulus materials of Part II which were arranged into 32 similar paragraphs. These data were analyzed with one analysis of

variance procedure for each of the three questions--likelihood of being learning disabled, grade level discrepancy in three years, and certainty of judgment. The AOV's were of a "split plot" design with the variables of social-emotional, IQ discrepancies and Bender scores manipulated within subjects. The variables of math and reading grade level discrepancies were manipulated among four subgroups within each of the major group classifications. For the question asking about the likelihood of learning disabilities, the following main effects were significant: reading with $\underline{F}(1, 64) = 10.46$, $\underline{p}<.002$, IQ discrepancies with $\underline{F}(1, 64) = 48.43$, $\underline{p}<.0001$, and Bender discrepancies with $\underline{F}(1, 64) = 45.99$, $\underline{p}<.0001$. The variable of social-emotional functioning approached significance with $\underline{F}(1, 64) = 3.04$, $\underline{p}<.09$. The significant interactions were: Math by Reading, $\underline{F}(1, 64) = 6.19$, $\underline{p}<.0155$, Math Grade Level Discrepancies by Emotional Functioning by PIQ-VIQ Discrepancies, $\underline{F}(1, 64) = 6.96$, $\underline{p}<.01$, Math Grade Level Discrepancies by Emotional Functioning by Bender Discrepancies, $\underline{F}(1, 64) = 7.25$, $\underline{p}<.009$, and Reading Grade Level Discrepancies by IQ Discrepancies by Bender Discrepancies, $\underline{F}(1, 64) = 4.27$, $\underline{p}<.05$. The significant four-way interactions were Groups by Reading Grade Level Discrepancies by Emotional Factors by Bender Discrepancies with $\underline{F}(3, 64) = 3.27$, $\underline{p}<.03$, and Math Grade Level Discrepancies by Reading Grade Level Discrepancies by Emotional Factors by Bender Discrepancy with $\underline{F}(1, 64)$

= 7.68, $p<.007$. (See Table 4 in Appendix B for a summary of these results.)

The second AOV procedure focused on the question of predicted grade level discrepancy in three years. The main effects of math grade level discrepancy, $F(1, 64) = 9.33$, $p<.003$, reading grade level discrepancy, $F(1, 64) = 77.52$, $p<.0001$, emotional functioning, $F(1, 64) = 17.73$, $p<.0001$, IQ discrepancies, $F(1, 64) = 32.13$, $p<.0001$, and Bender discrepancies, $F(1, 64) = 20.24$, $p<.0001$, were significant. The significant interactions were Math Grade Level Discrepancy by Reading Grade Level Discrepancy, $F(1, 64) = 24.04$, $p<.0001$, Reading Grade Level Discrepancy by IQ Discrepancies, $F(1, 64) = 4.05$, $p<.05$, Math Grade Level Discrepancies by Reading Grade Level Discrepancy by IQ Discrepancies, $F(1, 64) = 5.65$, $p<.02$, Groups by IQ Discrepancies by Bender Discrepancies, $F(3, 64) = 3.59$, $p<.02$, and Groups by Emotional Functioning by IQ Discrepancies by Bender Discrepancies, $F(3, 64) = 3.89$, $p<.02$. (See Table 5 in Appendix B for a summary of these results.)

The third AOV used the responses to the question about certainty of judgment. No main effects were significant. Significant interactions were those of Reading Grade Level Discrepancies by Emotional Functioning, $F(1, 64) = 3.99$, $p<.05$, Reading Grade Level Discrepancies by Bender Discrepancy, $F(1, 64) = 10.29$, $p<.002$, and IQ Discrepancy by Bender Discrepancy, $F(1, 64) = 10.07$, $p<.002$. (See Table 6 in Appendix B for a summary of these results.)

The third set of procedures focused on the weightings made on the Self Evaluation form. These were analyzed first with a simple AOV procedure using the four groups with their math and reading subgroups. Both weights, $F(10, 760) = 29.75$, and the groups by weights interaction, $F(30, 760) = 2.77$, were significant, $p<.001$. Since neither math nor reading were significant, these sub-groups were combined for a second analysis. In the second analysis weights $F(10, 760) = 28.20$, and the Weights by Group Interaction, $F(30, 760) = 2.63$, were significant, $p<.0001$. (See Table 7 in Appendix B for a summary of these results.) The Newman-Keuls Multiple Range Test was used to examine the means of the separate weights. A significant difference was found for the variables of age (Mean=3.16) and IQ discrepancies (Mean=5.16) as well as age (Mean=3.16) and reading grade level discrepancies (Mean =5.18).

Finally, simple one-way analyses of variance were performed by groups and by weights individually to determine the specific ones which contributed to statistical significance. The weights in three of the four groups were significantly different with $F(10, 209) = 4.12$ for Group 1 (Classroom teachers), $F(10, 209) = 7.27$ for Group 2 (Learning disabilities teachers), and $F(10, 209) = 9.44$ for Group 4 (Doctoral level psychologists and educators), $p<.0001$ for all three groups. Of the eleven weights the two variables IQ discrepancy and mathematics scores were rated significantly different with $F(3, 76) = 4.54$, $p<.01$, and $F(3, 76)$

= 2.76, $p<.05$, respectively. (See Tables 8 and 9 in Appendix B for summaries of these results.) The group means for the age variable were 3.35, 3.5, 3.25, and 2.55 for groups 1, 2, 3, and 4, respectively. The group means for IQ discrepancy were 4.65, 6.05, 4.55, and 5.4; for social-emotional were 5.45, 4.95, 4.35, and 4.8; and for math scores were 4.7, 3.55, 3.7, and 4.25.

The date obtained from the questions on the self-evaluation form were used to establish subject appropriateness and placement. Twenty subjects were included in each of the four specialty areas. The two questions regarding teaching experience established levels for inclusion in the study. The two questions regarding course work and certification were disregarded due to the large number of incomplete responses.

CHAPTER IV

DISCUSSION

Sentence Stimuli

The responses to Part I--the thirteen pairs of sentences--produced several significant results which are interesting. The most noteworthy result of the responses to the likelihood question is that regarding social-emotional functioning. Three of the four groups obtained significance on this variable, indicating that social-emotional problems were influential in the decision-making process, while the fourth group (psychometrists) showed a decided trend. This is most interesting since the definition of learning disabilities excludes problems in emotional functioning. However, this finding does substantiate informal first-person reports offered by school personnel.

A second interesting result emanating from responses to the likelihood question is the array dealing with PIAT Math and Reading scores. These pairs of scores were structured to co-vary with the grade level discrepancies in math and reading. Hence, it would be reasonable to expect the same responses to PIAT math and math grade level discrepancies and similarly to the PIAT reading and reading grade level

discrepancies. However, this expected result occurred only in the group of doctoral level educators and psychologists. The group of learning disabilities teachers obtained significance on three of the four pairs, PIAT math in addition to PIAT reading and grade level discrepancy in reading. The psychometrists group produced significance only to the latter two. Apparently, these two groups placed more emphasis on reading than on mathematics in evaluating for the possibility of being learning disabled. Finally, none of these pairs produced a significant result with the group of classroom teachers.

A final interesting point relating to the likelihood question was that significance placed on sex by the group of learning disabilities teachers. The first four pairs were included to establish a response set. It is well documented in the literature that a much higher number of boys than girls are diagnosed as learning disabled. Yet, this fact was supported as active knowledge by only one group--the learning disabilities teachers.

The responses in Part I to the question predicting later discrepancy yielded similar, interesting results. The variable of social-emotional functioning was significant for all four groups. This significance underscores that obtained on the likelihood question. Further, it suggests the possibility that such social-emotional functioning is generally viewed as characterological or of long-standing

duration, rather than short term from situationally-produced problems.

The array composed of the pairs of variables of PIAT math and reading scores and grade level discrepancies in math and reading produced significance in more numbers and in the expected direction. For this question both the doctoral group and the learning disabilities teacher group deemed all four pairs in math and reading to be predictive of future grade level discrepancy. The group of psychometrists acknowledged PIAT reading scores and current math and reading grade level discrepancies to be predictive of future grade level discrepancies. The group of classroom teachers focused on math--both scores and grade level discrepancies--while showing a trend toward grade level discrepancies in reading. With less stringent experiment-wise protection, the missing pairs in this array of math and reading would have been declared significant. Hence, it seems that the subjects in this study place value in current obtained levels of achieved performance influencing future performance.

A third interesting result to the predicted discrepancy question was that of significance attached to race and sex by the group of learning disabilities teachers. This finding underscores that discussed earlier to the likelihood question regarding documented sex differences. Again, though racial biases apparently exist and are described in the literature, only the learning disabilities teachers

acknowledged their awareness of such information, though both the doctoral group and the psychometrists group did show trends in the same direction on both variables.

A fourth finding to the predicted discrepancy question centered on IQ scores. Two groups--the doctoral subjects and the LD teachers--deem a slightly lower IQ without a PIQ-VIQ discrepancy to be predictive of future grade level discrepancy. A third group, the classroom teachers, showed a trend in the same direction. This finding is somewhat puzzling. It seems that perhaps intellectual functioning and, hence, general achievement, may be confused with a diagnosis of learning disabilities. Consistent with this finding is that of Full Scale IQ levels, which was found significant by the doctoral group and the classroom teacher group. In short, the child with the lower IQ is seen as more apt to be functioning with a grade level discrepancy in three years.

In Part I the responses to the question about certainty of the rater's judgment yielded no significant findings. Apparently the raters were equally sure/unsure on the various pieces of information. Informal feedback verbalized after responding to the ratings pointed out the paucity of information offered from which a judgment was asked.

Paragraph Stimuli

Part II was comprised of 32 paragraphs which included a portion of the information used in Part I. The same three

questions were asked at the end of each paragraph. In responding to the likelihood question, the main effects of reading, IQ discrepancy, and Bender discrepancy were significant variables. The variable describing social-emotional functioning approached significance ($p<.10$). Hence, each of these variables represents a valuable piece of information in its contribution to the diagnostic process of learning disabilities. Interestingly, the reading variable obtained significance while math did not, though the levels presented in the stimuli were quite similar.

Compare these findings to those in response to the same question in Part I. The significance placed on social-emotional functioning weakened to a trend in Part II. The emphasis placed on reading in Part I was continued in Part II. The one trend toward significance with the VIQ-PIQ discrepancy in Part I by the classroom teachers group became a significant variable when viewed in paragraph form. Similarly, the Bender was lesser valued as a single piece of information but became important in the larger context. Consequently, the research question dealing with change from single pieces of information to collections of data is supported.

Six interactions from the likelihood question in Part II were found to be significant. The first is the interaction of Math discrepancies with Reading discrepancies. With both math and reading scores in the normal area, the likelihood is low. The probability is seen to rise with

discrepant math scores (reading normal) and be even more likely with both discrepant reading and math. However, the likelihood was deemed greatest with normal math and discrepant reading scores. This may be due to thinking that with both reading and math delayed, the child may not be as capable generally, while the high reading discrepancy points to a specific disability.

The second interaction is that of Math with Social-Emotional Functioning and IQ Discrepancy. The chances of being LD are thought more likely with either discrepant math scores or VIQ-PIQ discrepancies. However, the interaction is not as straightforward when emotional problems are present. In that case with no PIQ-VIQ discrepancies the likelihood is thought to decrease even with discrepant math scores. One possible explanation for this phenomenon is the known effect of emotions on mathematics performance.

A third interaction is that of Math with Social-Emotional Functioning with discrepant Bender scores. This interaction is quite similar to that of Math with Social-Emotional and IQ Discrepancy. The major difference is that the discrepant Bender produces somewhat wider differences, indicating a greater likelihood of LD diagnosis. The curious aspect is that LD is not considered as likely given a normal Bender and emotional problems when math scores are discrepant. This finding is not so easily explained, but could again be reflecting the negative influence of emotional problems on mathematics performance.

The fourth interaction is that of Reading scores with discrepant PIQ-VIQ and Bender scores. Apparently, the relationship is clear-cut when PIQ-VIQ discrepancies are present. Without those discrepancies, either discrepant reading scores or discrepant Bender scores seem to wield an unusually strong influence, while the presence of both discrepant reading and Bender scores with no IQ discrepancies is not quite as likely. Another view of this interaction is one that considers the additive process of the three factors. With all three normal, likelihood is quite low. When only one factor is discrepant, the three means form a cluster. When two factors are discrepant, the three means form another cluster; in fact, two of these three means were identical. The likelihood of being LD with all three of these factors discrepant is rated quite high.

The fifth interaction is the four-way involving Groups with Reading scores by Social-Emotional Functioning by Bender scores. To understand this interaction the means for each cell were examined using the obvious division by groups. It is readily apparent that the group of classroom teachers generally rated less variation in likelihood. That group's mean for the normal cell was higher than any of the other three groups. The changes toward likelihood were generally less pronounced than those obtained by the other three groups. The classroom teacher group obtained a mean indicating no change from normal with a discrepant Bender score in the presence of discrepant reading scores and

PIQ-VIQ discrepancy. The groups are not consistent with their mean ratings, especially relative to the presence/absence of social-emotional problems. The most striking example is that seen in the doctoral group. The presence of social-emotional problems appears to exert a mild suppressing effect on discrepant Bender scores with both discrepant and normal reading scores.

The final significant interaction evolving from the likelihood question is that including Math and Reading scores with Social-Emotional Functioning and Bender scores. The various cell means from this interaction were also examined in detail. The logical division was that of the four math and reading combinations, as these were the between subjects factors. When Math was normal and reading discrepant the Bender discrepancy appeared less influential in the presence of emotional problems than in their absence. Similarly, though to a much lesser degree, with normal reading and discrepant math scores this same situation occurred. In addition, with both discrepant math and reading, the presence of emotional problems appeared to have the opposite--suppressing--effect from what would be consistent. One plausible reason could be the possibility of emotional problems, rather than learning disabilities, being seen as contributing to a generalized academic delay.

One interesting aspect of the results obtained in Part II to the likelihood question concerns the social-emotional variable. Though it only showed a trend toward significance

as a main effect, four of the six significant interactions included that variable as a component. Emotional factors seem to be exerting their effects--perhaps in a more subtle fashion.

The responses in Part II to the question of predicted future grade level discrepancy found math scores, reading scores, social-emotional factors, PIQ-VIQ discrepancies, and Bender scores discriminating at significant levels. The discrepancies currently noted in each of these variables were understood and rated to influence the appearance of significant grade level discrepancies three years hence. Further, each of these five variables may be considered an important piece of diagnostic information to which much attention is paid.

In comparing Parts I and II one notices that the results are very similar. The outstanding difference is the lack of significance of the Bender and IQ discrepancies in Part I which were then significant on Part II.

The first-order interaction of Math and Reading Discrepancy scores was found to be significant. This stems from unexpected ratings with Reading Discrepancy. The predicted grade level discrepancy was greater when in combination with normal math scores than with discrepant math scores. Possibly the double discrepancy was viewed as general academic retardation rather than as a specific learning disability.

The other first-order interaction was that of Reading Discrepancy scores in combination with PIQ-VIQ discrepancies. This interaction was significant due to the drastic changes predicted when Reading scores were discrepant. Though projected grade levels were less with both normal and discrepant reading scores in combination with discrepant IQ scores, a wide gap existed between the reading scores themselves when contrasting normal and discrepant scores.

The second-order interaction of Math and Reading scores with IQ discrepancies displayed a similar configuration of cell means. All changes were decreases in the expected direction with the addition of PIQ-VIQ discrepancies. The oddity was a reversed position of Reading discrepancies in combination with Math Discrepancy scores. The Reading Discrepancy scores were rated to produce a greater future grade level discrepancy when in combination with normal math scores than when seen with discrepant math scores.

The second-order interaction of Groups with IQ and Bender discrepancies is an interesting one. In this case cell means were examined to understand the four groups. All the changes were in the expected direction with greater discrepancies predicted for PIQ-VIQ discrepancies than with no PIQ-VIQ discrepancies. Two interesting features are noted. The classroom teacher group and doctoral group predicted higher levels for both normal and discrepant Bender scores than do the other two groups. The normal Benders were rated at approximately the same level by the

latter two groups (LD teachers and psychometrists) as the discrepant Benders by the former two groups (classroom teachers and psychologists). Also, the changes were greater with normal Benders and discrepant IQ scores with the classroom teacher and psychologist groups. In fact, a cross-over effect was observed in the classroom teacher group with normal Benders seen as slightly more predictive than discrepant Benders of future grade level discrepancies.

The final significant interaction found regarding predicted discrepancy was that of Groups with Emotion by IQ discrepancies by Bender scores. This is somewhat an extension of the previous interaction with the inclusion of social-emotional functioning--which appears to make the picture much more complex and difficult to interpret. Looking at the cell means of the classroom teacher group, with no social-emotional problems the Bender and IQ discrepancy combinations vary regularly and in the expected direction. However, when these are overlaid with emotional problems, a cross-over effect is observed with the normal Bender rated as producing a greater future grade level discrepancy. The group of LD teachers' cell mean ratings is very similar in configuration with differences in level. That is, the cell means for normal and discrepant Bender scores were further apart but moved in the anticipated direction with the change from normal to discrepant IQ scores. Similarly, when these factors were overlaid with social-emotional problems, then the direction shifted and a

cross-over effect was observed. The discrepant Bender was rated as less apt to be predictive of grade level discrepancy than the normal Bender. Noteworthy in the psychometrists group are the lack of changes in cell means. The means are nearly identical for normal emotional functioning and a discrepant Bender when viewed with normal and discrepant PIQ-VIQ scores. Additionally, the means were the same for normal and discrepant Benders in conjunction with no PIQ-VIQ discrepancy and emotional problems. The last group of this interaction--doctoral subjects--apparently rated the discrepant PIQ-VIQ as more predictive when in conjunction with no emotional problems and a normal Bender.

The third question asked after each paragraph in Part II inquired about certainty of judgment in making these various ratings. Only three first-order interactions were significant. The first of these was the combination of Reading scores with Emotional Functioning. The raters were more certain of their decisions with discrepant reading scores in the presence of emotional problems (than with no emotional problems) and were slightly more certain of their decisions when neither factor was discrepant.

A second interaction was that of Reading scores in combination with Bender scores. Decisions were equally certain when both factors were either normal or discrepant. The decision was much less certain when the Bender was normal and reading scores were discrepant.

A third interaction again included Bender scores, this time in conjunction with IQ discrepancies. Again with both factors discrepant or both normal the decisions were equally certain and nearly as certain no no IQ discrepancy and a discrepant Bender. The variant was the cell with normal Benders and discrepant PIQ-VIQ in which less certainty was reported.

Reported Weights

The findings obtained for the Self-evaluation, Part III, describe an interesting situation. Three of the four groups obtained quite similar means as a group. Yet, the eleven different variables appear to have been rated unequally. Conservatively, only the age variable appears significantly different. Age is apparently of small consequence to these raters. This is consistent with results obtained on Parts I and II. On the other hand, IQ discrepancies and reading grade level discrepancies all acknowledged to be highly valued by these raters. This finding is clearly consistent with those reported in Parts I and II.

Both the weights and the Groups by Weights interaction were significant, though groups alone was not. Another interesting finding is the significant interaction of Groups by Weights. Further analyses were necessary to explore the reasons for statistical significance. The Newman-Keuls results indicate much greater value placed on the social-

emotional variable and on the reading grade level discrepancy variable than on the age variable. The age variable approached significance in two of four groups for Part I on the likelihood question. Hence, these two findings are somewhat inconsistent. As has been observed, the social-emotional variable was consistently significant in Part I and appeared to be exerting its effects in interactions in Part II. Hence, this finding is consistent with preceding results. A similar statement may be made for the variable of reading grade level discrepancy.

The additional analyses examining the Groups by Weights and Weights by Groups interaction shed further light on the self-evaluation. Of the separate eleven variables rated by the four groups, the variables of IQ discrepancy and math scores were significantly different. Thus, the subjects did not weigh these variables in a consistent fashion. The subjects were most consistent in their ratings of IQ as a variable.

Of the separate four groups, three of the four obtained statistical significance at a high level. This indicates that much variability was obtained on the separate eleven variable mean weights within three of the four groups. Age was the variable with the lowest mean, indicating the least diagnostic value. Social-emotional, IQ discrepancy, and reading grade level discrepancies were rated the highest in all four groups. The latter three varied in their relative positions within each of the four groups. Only the

psychometrist group was consistent. An examination of the raw data revealed that three of the 20 subjects circled the same number for all eleven weights.

To summarize, this study investigated expert judgments in determining the likelihood of learning disabilities, in predicting future grade level discrepancies, and in evaluating one's judgments, both in certainty and in weighting the variables used in earlier sections of the study. The results were over-all as expected. Math and reading scores and grade level discrepancies were generally consistent on both the likelihood and discrepancy questions. The changes from single pieces of information to the vignettes centered on the variables of IQ and Bender scores with those being significant in conjunction with other information. The most noteworthy finding is the consistent attention paid to social-emotional functioning in Parts I and II. This finding underscores the oblique references in the literature and personal communications. The question regarding certainty of judgment was of slight interest due to consistency of responses across groups and variables. The mean weights obtained on the self-evaluation with the eleven variables by groups reflected much variability both between variables and within groups.

Recommendations for further study would include the dismissal of single pieces of information. Including more variables within the vignettes or designing similar vignettes with different variables would yield additional

useful information. This study was designed and executed using Oklahoma guidelines, practices, and personnel. A replication from another geographical location using that frame of reference would be enlightening.

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APPENDIX A

STIMULUS MATERIALS

Dear Educator:

The assessment of learning disabled children is a complex task. The following materials were evolved to gain information about this process. In order to do this research in an organized manner, it was necessary to include only certain types of information. Hence, you will have less information than is usually available when attempting to diagnose a child as learning disabled.

Please use your professional knowledge and experience as you evaluate and rate the materials. Read through the information in the order presented and then respond immediately to each of the three question. Do the booklets first and then the paragraphs. We are asking you to make a rapid judgment which is probably contrary to your training. Nevertheless, your participation in this study is valuable and appreciated.

JAMIE IS AN 8½ YEAR OLD CHILD.

What is the likelihood that this child is learning disabled?

Little 1 2 3 4 5 6 7 8 9 Much

What would you predict as this child's grade level discrepancy (+,0,-) three years from now?

-3.0 -2.5 -2.0 -1.5 -1.0 -0.5 0.0 +0.5 +1.0

How certain are you of your judgment on the ratings?

Uncertain 1 2 3 4 5 6 7 Very Certain

SHAWN IS AN 11½ YEAR OLD CHILD.

What is the likelihood that this child is learning disabled?

Little 1 2 3 4 5 6 7 8 9 Much

What would you predict as this child's grade level discrepancy (+,0,-) three years from now?

-3.0 -2.5 -2.0 -1.5 -1.0 -0.5 0.0 +0.5 +1.0

How certain are you of your judgment on the ratings?

Uncertain 1 2 3 4 5 6 7 Very Certain

LIST OF SINGLE VARIABLE PAIRS

Jamie is an 8½ year old child.
Shawn is an 11½ year old child.

Bobby is a black child.
Casey is a caucasian child.

Alfred is a boy.
Annie is a girl.

Terry is in the third grade.
Stacy is in the sixth grade.

S/he displays appropriate social and emotional adjustment.
S/he displays problem behaviors in social and emotional functioning.

S/he has a 108 IQ score.
S/he has a 94 IQ score.

S/he has a VIQ of 109 and PIQ of 105.
S/he has a VIQ of 97 and PIQ of 92.

S/he has a VIQ of 90 and PIQ of 105.
S/he has a VIQ of 100 and PIQ of 117.

S/he obtained a Bender score in the 8-0 to 8-5 age range.
S/he obtained a Bender score in the 6-5 to 7-0 age range.

S/he obtained a PIAT mathematics standard score of 104.
S/he obtained a PIAT mathematics standard score of 82.

S/he obtained a PIAT reading comprehension standard score of 105.
S/he obtained a PIAT reading comprehension standard score of 79.

This child's current functioning is at the 0.1 grade level discrepancy in mathematics.
This child's current functioning is at the -1.2 grade level discrepancy in mathematics.

This child's current functioning is at the +0.2 grade level discrepancy is basic reading skills.
This child's current functioning is at the -1.5 grade level discrepancy is basic reading skills.

Aaron is an 8½ year old Caucasian male who is currently finishing the third grade. He displays problem behaviors in social and emotional functioning. He was referred to the RESC for evaluation and obtained the following scores: WISC-R Full Scale IQ of 94, Verbal IQ of 90, Performance IQ of 105, Bender Visual Motor Gestalt 6-5 to 7-0 range. On the PIAT he obtained Standard Scores of 82 in Mathematics and 79 in Reading Recognition. These scores resulted in grade level discrepancies of -1.2 in mathematics and -1.5 in reading skills.

What is the likelihood that this child is learning disabled?

Little 1 2 3 4 5 6 7 8 9 Much

What would you predict as this child's grade level discrepancy (+,0,-) three years from now?

-3.0 -2.5 -2.0 -1.5 -1.0 -0.5 0.0 +0.5 +1.0

How certain are you of your judgment on the ratings?

Uncertain 1 2 3 4 5 6 7 Very Certain

LIST OF PARAGRAPH NAMES AND COMBINATIONS

Emotional-Normal

IQ-Normal		IQ-Discrepant	
Bender Normal	Bender Discrepant	Bender Normal	Bender Discrepant
Norman	Joe	Sam	Bruce
Noel	Jamie	Sol	Brad
Nick	Jay	Stan	Brett
Neal	Jerry	Stu	Bryan

Emotional-Discrepant

IQ-Normal		IQ-Discrepant	
Bender Normal	Bender Discrepant	Bender Normal	Bender Discrepant
Mark	Harry	Randy	Allen
Mort	Henry	Ray	Asa
Mike	Hal	Ricky	Arney
Mitch	Hank	Ronny	Aaron

ARRANGEMENT OF PARAGRAPH STIMULI

Sub-group 1 Math-Normal Reading-Normal	Sub-group 2 Math-Normal Reading-Discrepant
Norman	Nick
Joe	Jay
Sam	Stan
Bruce	Brett
Mark	Mike
Harry	Hal
Randy	Ricky
Allen	Arney

Sub-group 3 Math-Discrepant Reading-Normal	Sub-group 4 Math-Discrepant Reading-Discrepant
Noel	Neal
Jamie	Jerry
Sol	Stu
Brad	Bryan
Mort	Mitch
Henry	Hank
Ray	Ronny
Asa	Aaron

SELF-EVALUATION

The process used in evaluating and rating these materials is very interesting to us. Please evaluate your decisions in rating the information.

How much weight did you give to each of these variables?

	Little						Much
Age	1	2	3	4	5	6	7
Sex	1	2	3	4	5	6	7
Grade	1	2	3	4	5	6	7
IQ	1	2	3	4	5	6	7
IQ Discrepancy	1	2	3	4	5	6	7
Bender	1	2	3	4	5	6	7
Emotional Factors	1	2	3	4	5	6	7
Mathematics Scores	1	2	3	4	5	6	7
Reading Scores	1	2	3	4	5	6	7
Math Grade Discrepancy	1	2	3	4	5	6	7
Reading Grade Discrepancy	1	2	3	4	5	6	7

Some information about your professional background and experience will be helpful in analyzing the ratings you made of the information presented.

SELF-EVALUATION (Continued)

What is your specialty area?

How many courses have you taken in this area?

What is your highest degree?

How many years teaching experience do you have?

How many of these years are in your specialty area?

How are you certified?

The results of this study are expected to be beneficial both to teachers and their students. Your participation and cooperation is very much appreciated. Thank you!!

APPENDIX B

TABLES OF ANALYSES

TABLE 1

T-TESTS OF LIKELIHOOD

Group 1--Classroom Teachers

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	-2.37	0.0284	-0.40
Race (black, caucasian)	3.10	0.0058	4.45
Sex (boy, girl)	0.82	0.4251	0.25
Grade (3, 6)	-2.10	0.0493	-0.35
Social-Emotional (approp., problem)	-5.98	0.0001	-2.80
IQ Score (108, 94)	-3.00	0.0074	-1.50
Normal VIQ-PIQ (109, 105; 97, 92)	-3.25	0.0042	-1.70
Discrepant VIQ-PIQ (90, 105; 100, 117)	4.02	0.0007	1.50
Bender (8-0 to 8-5; 6-5 to 7-0)	-0.29	0.7715	-0.05
PIAT Math Stand Score (104, 82)	-2.31	0.0326	-1.15
PIAT Reading Stand Score (105, 79)	-2.89	0.0093	-1.55
Math Grade Level Discrep (0.1, -1.2)	-3.13	0.0055	-1.90
Reading Grade Level Discrep (0.2, -1.5)	-3.43	0.0028	-1.95

Group 2--Learning Disabilities Teachers

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	-1.16	0.2617	-0.25
Race (black, caucasian)	2.21	0.0395	0.75
Sex (boy, girl)	5.84	0.0001	1.70
Grade (3, 6)	-0.94	0.3590	-0.20
Social-Emotional (approp., problem)	-4.81	0.0001	-2.60
IQ Score (108, 94)	-1.99	0.0617	-0.95
Normal VIQ-PIQ (109, 105; 97, 92)	-3.00	0.0074	-0.85
Discrepant VIQ-PIQ (90, 105; 100, 117)	-0.20	0.8409	-0.05
Bender (8-0 to 8-5; 6-5 to 7-0)	-2.15	0.0445	-0.70
PIAT Math Stand Score (104, 82)	-5.16	0.0001	-1.75
PIAT Reading Stand Score (105, 79)	-6.02	0.0001	-2.45
Math Grade Level Discrep (0.1, -1.2)	-3.75	0.0014	-1.85
Reading Grade Level Discrep (0.2, -1.5)	-7.62	0.0001	-3.60

TABLE 1 (Continued)

Group 3--Pyschometrists

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	-3.24	0.0043	-0.80
Race (black, caucasian)	2.43	0.0253	0.85
Sex (boy, girl)	2.50	0.0218	0.95
Grade (3, 6)	-1.45	0.1625	-0.30
Social-Emotional (approp., problem)	-4.33	0.0004	-2.40
IQ Score (108, 94)	-1.60	0.1256	-0.50
Normal VIQ-PIQ (109, 105; 97, 92)	-2.65	0.0158	-0.45
Discrepant VIQ-PIQ (90, 105; 100, 117)	-0.23	0.8229	-0.10
Bender (8-0 to 8-5; 6-5 to 7-0)	0.00	1.0000	0.00
PIAT Math Stand Score (104, 82)	-3.81	0.0012	-1.45
PIAT Reading Stand Score (105, 79)	-4.72	0.0001	-2.55
Math Grade Level Discrep (0.1, -1.2)	-2.91	0.0089	-1.80
Reading Grade Level Discrep (0.2, -1.5)	-6.66	0.0001	-3.50

Group 4--Doctoral Level Psychologists and Educators

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	0.62	0.5409	0.10
Race (black, caucasian)	3.68	0.0016	0.75
Sex (boy, girl)	4.68	0.0002	0.85
Grade (3, 6)	0.00	1.0000	0.00
Social-Emotional (approp., problem)	-5.96	0.0001	-2.05
IQ Score (108, 94)	-2.52	0.0210	-0.50
Normal VIQ-PIQ (109, 105; 97, 92)	-2.82	0.0110	-0.85
Discrepant VIQ-PIQ (90, 105; 100, 117)	1.95	0.0662	0.50
Bender (8-0 to 8-5; 6-5 to 7-0)	-1.11	0.2827	-0.45
PIAT Math Stand Score (104, 82)	-5.11	0.0001	-1.55
PIAT Reading Stand Score (105, 79)	-5.60	0.0001	-2.30
Math Grade Level Discrep (0.1, -1.2)	-4.87	0.0001	-2.00
Reading Grade Level Discrep (0.2, -1.5)	-7.86	0.0001	-2.45

TABLE 2

T-TESTS FOR GRADE LEVEL DISCREPANCY

Group 1--Classroom Teachers

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	2.70	0.0141	1.00
Race (black, caucasian)	-3.66	0.0017	1.70
Sex (boy, girl)	-2.57	0.0189	1.10
Grade (3, 6)	1.83	0.0828	0.30
Social-Emotional (approp., problem)	5.78	0.0001	2.95
IQ Score (108, 94)	5.57	0.0001	2.20
Normal VIQ-PIQ (109, 105; 97, 92)	4.10	0.0006	1.90
Discrepant VIQ-PIQ (90, 105; 100, 117)	-3.87	0.0010	1.75
Bender (8-0 to 8-5; 6-5 to 7-0)	0.63	0.5359	0.25
PIAT Math Stand Score (104, 82)	4.90	0.0001	1.80
PIAT Reading Stand Score (105, 79)	2.66	0.0156	1.65
Math Grade Level Discrep (0.1, -1.2)	5.44	0.0001	2.45
Reading Grade Level Discrep (0.2, -1.5)	3.95	0.0009	3.05

Group 2--Learning Disabilities Teachers

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	3.56	0.0021	0.60
Race (black, caucasian)	-4.35	0.0003	-1.65
Sex (boy, girl)	-5.15	0.0001	-1.30
Grade (3, 6)	1.00	0.3299	0.25
Social-Emotional (approp., problem)	8.74	0.0001	3.10
IQ Score (108, 94)	3.83	0.0011	1.40
Normal VIQ-PIQ (109, 105; 97, 92)	4.53	0.0002	1.45
Discrepant VIQ-PIQ (90, 105; 100, 117)	-2.67	0.0152	-0.85
Bender (8-0 to 8-5; 6-5 to 7-0)	3.11	0.0058	0.80
PIAT Math Stand Score (104, 82)	5.98	0.0001	2.25
PIAT Reading Stand Score (105, 79)	6.28	0.0001	2.70
Math Grade Level Discrep (0.1, -1.2)	6.52	0.0001	2.85
Reading Grade Level Discrep (0.2, -1.5)	10.51	0.0001	4.80

TABLE 2 (Continued)

Group 3--Pyschometrists

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	3.34	0.0034	1.00
Race (black, caucasian)	-3.90	0.0010	-1.30
Sex (boy, girl)	-3.11	0.0058	-0.80
Grade (3, 6)	2.33	0.0308	0.70
Social-Emotional (approp., problem)	6.42	0.0001	2.75
IQ Score (108, 94)	2.90	0.0093	0.70
Normal VIQ-PIQ (109, 105; 97, 92)	3.57	0.0021	1.05
Discrepant VIQ-PIQ (90, 105; 100, 117)	-1.85	0.0794	-0.75
Bender (8-0 to 8-5; 6-5 to 7-0)	1.42	0.1713	0.25
PIAT Math Stand Score (104, 82)	3.30	0.0038	1.50
PIAT Reading Stand Score (105, 79)	8.26	0.0001	3.35
Math Grade Level Discrep (0.1, -1.2)	5.77	0.0001	2.20
Reading Grade Level Discrep (0.2, -1.5)	10.64	0.0001	4.20

Group 4--Doctoral Level Psychologists and Educators

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	1.00	0.3299	0.05
Race (black, caucasian)	-3.46	0.0026	-1.05
Sex (boy, girl)	-3.60	0.0019	-0.90
Grade (3, 6)	1.45	0.1625	0.10
Social-Emotional (approp., problem)	8.64	0.0001	2.25
IQ Score (108, 94)	4.86	0.0001	1.20
Normal VIQ-PIQ (109, 105; 97, 92)	4.68	0.0002	0.85
Discrepant VIQ-PIQ (90, 105; 100, 117)	-3.52	0.0023	-1.15
Bender (8-0 to 8-5; 6-5 to 7-0)	2.37	0.0284	0.65
PIAT Math Stand Score (104, 82)	5.92	0.0001	2.10
PIAT Reading Stand Score (105, 79)	5.78	0.0001	2.80
Math Grade Level Discrep (0.1, -1.2)	9.28	0.0001	2.70
Reading Grade Level Discrep (0.2, -1.5)	9.14	0.0001	3.65

TABLE 3

T-TESTS FOR CERTAINTY OF DECISION

Group 1--Classroom Teachers

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	0.52	0.6058	0.10
Race (black, caucasian)	-0.57	0.5770	-0.10
Sex (boy, girl)	-0.94	0.3590	-0.20
Grade (3, 6)	2.18	0.0421	0.20
Social-Emotional (approp., problem)	-0.25	0.8037	-0.05
IQ Score (108, 94)	-0.25	0.8037	-0.05
Normal VIQ-PIQ (109, 105; 97, 92)	0.00	1.0000	0.00
Discrepant VIQ-PIQ (90, 105; 100, 117)	0.00	1.0000	0.00
Bender (8-0 to 8-5; 6-5 to 7-0)	0.00	1.0000	0.00
PIAT Math Stand Score (104, 82)	0.38	0.7054	0.10
PIAT Reading Stand Score (105, 79)	-1.44	0.1653	-0.45
Math Grade Level Discrep (0.1, -1.2)	-1.05	0.3087	-0.35
Reading Grade Level Discrep (0.2, -1.5)	0.00	1.0000	0.00

Group 2--Learning Disabilities Teachers

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	-1.07	0.2967	-0.20
Race (black, caucasian)	0.46	0.6493	0.10
Sex (boy, girl)	-0.44	0.6663	-0.05
Grade (3, 6)	0.85	0.4077	0.20
Social-Emotional (approp., problem)	0.00	1.0000	0.00
IQ Score (108, 94)	-1.44	0.1670	-0.35
Normal VIQ-PIQ (109, 105; 97, 92)	1.93	0.0692	0.35
Discrepant VIQ-PIQ (90, 105; 100, 117)	1.16	0.2585	0.20
Bender (8-0 to 8-5; 6-5 to 7-0)	-0.33	0.7481	-0.05
PIAT Math Stand Score (104, 82)	-1.29	0.2141	-0.20
PIAT Reading Stand Score (105, 79)	-0.37	0.7157	-0.05
Math Grade Level Discrep (0.1, -1.2)	0.00	1.0000	0.00
Reading Grade Level Discrep (0.2, -1.5)	0.00	1.0000	0.00

TABLE 3 (Continued)

Group 3--Pyschometrists

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	-2.04	0.0553	-0.30
Race (black, caucasian)	0.72	0.4794	0.20
Sex (boy, girl)	-1.29	0.2141	-0.20
Grade (3, 6)	-0.57	0.5770	-0.05
Social-Emotional (approp., problem)	0.20	0.8409	0.05
IQ Score (108, 94)	-0.49	0.6295	-0.10
Normal VIQ-PIQ (109, 105; 97, 92)	-0.57	0.5770	-0.05
Discrepant VIQ-PIQ (90, 105; 100, 117)	-0.29	0.7715	-0.05
Bender (8-0 to 8-5; 6-5 to 7-0)	-0.90	0.3793	-0.15
PIAT Math Stand Score (104, 82)	0.59	0.5620	0.15
PIAT Reading Stand Score (105, 79)	-1.56	0.1351	-0.25
Math Grade Level Discrep (0.1, -1.2)	-1.00	0.3299	-0.20
Reading Grade Level Discrep (0.2, -1.5)	-1.83	0.0828	-0.45

Group 4--Doctoral Level Psychologists and Educators

Variable (Level 1, Level 2)	T	Prob.	Mean
Age (8½, 11½)	1.00	0.3299	0.15
Race (black, caucasian)	-0.57	0.5770	-0.05
Sex (boy, girl)	-0.29	0.7715	-0.05
Grade (3, 6)	1.37	0.1864	0.15
Social-Emotional (approp., problem)	0.82	0.4251	0.25
IQ Score (108, 94)	0.37	0.7157	0.05
Normal VIQ-PIQ (109, 105; 97, 92)	0.81	0.4283	0.10
Discrepant VIQ-PIQ (90, 105; 100, 117)	0.62	0.5409	0.10
Bender (8-0 to 8-5; 6-5 to 7-0)	-1.16	0.2585	-0.20
PIAT Math Stand Score (104, 82)	-0.79	0.4375	-0.25
PIAT Reading Stand Score (105, 79)	0.00	1.0000	0.00
Math Grade Level Discrep (0.1, -1.2)	0.20	0.8474	0.05
Reading Grade Level Discrep (0.2, -1.5)	0.29	0.7715	0.05

TABLE 4

ANALYSIS OF VARIANCE ON LIKELIHOOD OF L.D.

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Between					
Groups (Grps)	3	5.830	1.943	0.11	0.9505
Math	1	5.439	5.439	0.30	0.5843
Reading (Rdng)	1	188.139	188.139	10.46	0.0019
Grps*Math	3	25.480	8.493	0.47	0.7066
Grps*Rdng	3	48.380	16.127	0.90	0.4500
Math*Rdng	1	111.389	111.389	6.19	0.0155
Within					
Emotion (Emtn)	1	11.827	11.827	3.04	0.0858
Grps*Emtn	3	9.092	3.031	0.78	0.5123
Math*Emtn	1	3.452	3.452	0.89	0.3495
Rdng*Emtn	1	0.564	0.564	0.15	0.7044
Grps*Math*Emtn	3	4.167	1.389	0.36	0.7864
Grps*Rdng*Emtn	3	3.055	1.018	0.26	0.8529
Math*Rdng*Emtn	1	0.564	0.564	0.15	0.7044
IQ	1	93.789	93.789	48.43	0.0001
Grps*IQ	3	14.455	4.818	2.49	0.0673
Math*IQ	1	0.002	0.002	0.00	0.9774
Rdng*IQ	1	6.602	6.602	3.41	0.0695
Grps*Math*IQ	3	3.492	1.164	0.60	0.6206
Grps*Rdng*IQ	3	7.842	2.614	1.35	0.2654
Math*Rdng*IQ	1	0.689	0.689	0.36	0.5530
Bender (Bndr)	1	190.314	190.314	45.99	0.0001
Grps*Bndr	3	19.555	6.518	1.58	0.2027
Math*Bndr	1	0.077	0.077	0.02	0.8922
Rdng*Bndr	1	7.439	7.439	1.80	0.1847
Grps*Math*Bndr	3	11.642	3.881	0.94	0.4294
Grps*Rdng*Bndr	3	1.280	0.427	0.10	0.9532
Math*Rdng*Bndr	1	0.077	0.077	0.02	0.8922

TABLE 4 (Continued)

Emtn*IQ	1	0.189	0.189	0.16	0.6923
Grps*Emtn*IQ	3	5.955	1.985	1.66	0.1831
Math*Emtn*IQ	1	8.327	8.327	6.96	0.0104
Rdng*Emtn*IQ	1	4.389	4.389	3.67	0.0599
Grps*Math*Emtn*IQ	3	2.017	0.672	0.56	0.6459
Grps*Rdng*Emtn*IQ	3	2.605	0.835	0.73	0.5436
Math*Rdng*Emtn*IQ	1	0.077	0.077	0.06	0.8011
Emtn*Bndr	1	0.977	0.977	0.95	0.3329
Grps*Emtn*Bndr	3	0.392	0.131	0.13	0.9395
Math*Emtn*Bndr	1	7.439	7.439	7.25	0.0090
Rdng*Emtn*Bndr	1	1.314	1.314	1.28	0.2619
Grps*Math*Emtn*Bndr	3	2.830	0.943	0.92	0.4384
Grps*Rdng*Emtn*Bndr	3	10.055	3.352	3.27	0.0266
Math*Rdng*Emtn*Bndr	1	7.877	7.877	7.68	0.0073
IQ*Bndr	1	0.014	0.014	0.02	0.8955
Grps*IQ*Bndr	3	3.230	1.073	1.33	0.2713
Math*IQ*Bndr	1	0.264	0.264	0.33	0.5697
Rdng*IQ*Bndr	1	3.452	3.452	4.27	0.0429
Grps*Math*IQ*Bndr	3	1.430	0.477	0.59	0.6281
Grps*Rdng*IQ*Bndr	3	3.392	1.131	1.40	0.2505
Math*Rdng*IQ*Bndr	1	0.452	0.452	0.56	0.4576
Emtn*IQ*Bndr	1	0.039	0.039	0.04	0.8511
Grps*Emtn*IQ*Bndr	3	5.755	1.918	1.75	0.1651
Math*Emtn*IQ*Bndr	1	0.189	0.189	0.17	0.6797
Rdng*Emtn*IQ*Bndr	1	2.139	2.139	1.95	0.1678
G*M*E*Q*B	3	1.705	0.568	0.52	0.6760
G*R*E*Q*B	3	2.905	0.968	0.88	0.4580
M*R*E*Q*B	1	1.914	1.914	1.74	0.1917
Error					
Sub(Grps*Math* Rdng)	64	1151.45			
Sub*Emtn(G*M*R)	64	248.65			
Sub*IQ(G*M*R)	64	123.95			
Sub*B(G*M*R)	64	264.85			
Sub*E*IQ(G*M*R)	64	76.55			
Sub*E*B(G*M*R)	64	65.65			
Sub*Q*B(G*M*R)	64	51.75			
Sub*E*Q*B(G*M*R)	64	70.35			
Total	639	3064.8609	4.796	999.99	0.0000

TABLE 5

ANALYSIS OF VARIANCE ON PREDICTED GRADE LEVEL DISCREPANCY

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Between					
Groups (Grps)	3	16.081	5.360	0.57	0.6439
Math	1	88.506	88.506	9.33	0.0033
Reading (Rdng)	1	735.306	735.306	77.52	0.0001
Grps*Math	3	10.006	3.335	0.35	0.7905
Grps*Rdng	3	7.281	2.427	0.26	0.8571
Math*Rdng	1	228.006	228.006	24.04	0.0001
Within					
Emotion (Emtn)	1	31.506	31.506	17.73	0.0001
Grps*Emtn	3	8.031	2.677	1.51	0.2202
Math*Emtn	1	1.406	1.406	0.79	0.3771
Rdng*Emtn	1	1.806	1.806	1.02	0.3172
Grps*Math*Emtn	3	4.056	1.352	0.76	0.5233
Grps*Rdng*Emtn	3	3.131	1.044	0.59	0.6295
Math*Rdng*Emtn	1	2.256	2.256	1.27	0.2641
IQ	1	24.025	24.025	32.13	0.0001
Grps*IQ	3	0.863	0.288	0.38	0.7675
Math*IQ	1	2.500	2.500	3.34	0.0721
Rdng*IQ	1	3.025	3.025	4.05	0.0485
Grps*Math*IQ	3	0.413	0.138	0.18	0.9049
Grps*Rdng*IQ	3	4.063	1.354	1.81	0.1524
Math*Rdng*IQ	1	4.225	4.225	5.65	0.0204
Bender (Bndr)	1	16.900	16.900	20.24	0.0001
Grps*Bndr	3	2.713	0.904	1.08	0.3635
Math*Bndr	1	0.400	0.400	0.48	0.4914
Rdng*Bndr	1	0.025	0.025	0.03	0.8632
Grps*Math*Bndr	3	0.988	0.329	0.39	0.7607
Grps*Rdng*Bndr	3	2.038	0.679	0.81	0.4939
Math*Rdng*Bndr	1	0.900	0.900	1.08	0.3031

TABLE 5 (Continued)

Emtn*IQ	1	0.100	0.100	0.16	0.6866
Grps*Emtn*IQ	3	3.988	1.329	2.18	0.0971
Math*Emtn*IQ	1	0.025	0.025	0.04	0.8400
Rdng*Emtn*IQ	1	0.100	0.100	0.16	0.6866
Grps*Math*Emtn*IQ	3	0.788	0.263	0.43	0.7348
Grps*Rdng*Emtn*IQ	3	0.788	0.263	0.43	0.7348
Math*Rdng*Emtn*IQ	1	0.100	0.100	0.16	0.6866
Emtn*Bndr	1	1.600	1.600	1.64	0.2046
Grps*Emtn*Bndr	3	1.913	0.638	0.65	0.5868
Math*Emtn*Bndr	1	0.400	0.400	0.41	0.5240
Rdng*Emtn*Bndr	1	3.025	3.025	3.11	0.0828
Grps*Math*Emtn*Bndr	3	0.388	0.129	0.13	0.9365
Grps*Rdng*Emtn*Bndr	3	1.138	0.379	0.39	0.7642
Math*Rdng*Emtn*Bndr	1	0.400	0.400	0.41	0.5240
IQ*Bndr	1	0.306	0.306	0.56	0.4573
Grps*IQ*Bndr	3	5.906	1.935	3.59	0.0181
Math*IQ*Bndr	1	0.506	0.506	0.92	0.3399
Rdng*IQ*Bndr	1	0.056	0.056	0.10	0.7496
Grps*Math*IQ*Bndr	3	0.581	0.194	0.35	0.7890
Grps*Rdng*IQ*Bndr	3	1.906	0.635	1.16	0.3320
Math*Rdng*IQ*Bndr	1	1.406	1.406	2.57	0.1140
Emtn*IQ*Bndr	1	2.256	2.256	3.65	0.0605
Grps*Emtn*IQ*Bndr	3	7.206	2.402	3.89	0.0129
Math*Emtn*IQ*Bndr	1	0.506	0.506	0.82	0.3688
Rdng*Emtn*IQ*Bndr	1	0.506	0.506	0.82	0.3688
G*M*E*Q*B	3	2.731	0.910	1.47	0.2290
G*R*E*Q*B	3	1.606	0.535	0.87	0.4655
M*R*E*Q*B	1	0.006	0.006	0.01	0.9202
Error					
Sub(Grps*Math* Rdng)	64	607.05			
Sub*Emtn(G*M*R)	64	113.75			
Sub*IQ(G*M*R)	64	47.85			
Sub*B(G*M*R)	64	38.95			
Sub*E*IQ(G*M*R)	64	53.45			
Sub*E*B(G*M*R)	64	62.35			
Sub*Q*B(G*M*R)	64	35.05			
Sub*E*Q*B(G*M*R)	64	39.55			
Total	639	2292.594	3.588	999.99	0.0000

TABLE 6

ANALYSIS OF VARIANCE ON CERTAINTY OF DECISION

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Between					
Groups (Grps)	3	46.741	15.580	0.99	0.4046
Math	1	58.202	58.202	3.70	0.0589
Reading (Rdng)	1	1.702	1.702	0.11	0.7434
Grps*Math	3	10.617	3.539	0.22	0.8781
Grps*Rdng	3	32.642	10.881	0.69	0.5642
Math*Rdng	1	2.627	2.627	0.17	0.6843
Within					
Emotion (Emtn)	1	0.264	0.264	0.44	0.5078
Grps*Emtn	3	0.330	0.110	0.18	0.9045
Math*Emtn	1	0.352	0.352	0.59	0.4450
Rdng*Emtn	1	2.377	2.377	3.99	0.0500
Grps*Math*Emtn	3	2.192	0.731	1.23	0.3068
Grps*Rdng*Emtn	3	0.792	0.264	0.44	0.7263
Math*Rdng*Emtn	1	0.039	0.039	0.07	0.7987
IQ	1	1.314	1.314	2.23	0.1402
Grps*IQ	3	2.980	0.993	1.69	0.1773
Math*IQ	1	1.314	1.314	2.23	0.1402
Rdng*IQ	1	0.689	0.689	1.17	0.2835
Grps*Math*IQ	3	0.430	0.143	0.24	0.8658
Grps*Rdng*IQ	3	0.080	0.027	0.05	0.9818
Math*Rdng*IQ	1	1.314	1.314	2.23	0.1402
Bender (Bndr)	1	1.914	1.914	3.42	0.0690
Grps*Bndr	3	1.330	0.443	0.79	0.5054
Math*Bndr	1	0.827	1.827	1.48	0.2286
Rdng*Bndr	1	5.814	5.814	10.39	0.0020
Grps*Math*Bndr	3	1.668	0.556	0.99	0.4029
Grps*Rdng*Bndr	3	1.855	0.618	1.11	0.3541
Math*Rdng*Bndr	1	0.452	0.452	0.81	0.3723

TABLE 6 (Continued)

Emtn*IQ	1	0.077	0.077	0.16	0.6865
Grps*Emtn*IQ	3	1.342	0.447	0.96	0.4183
Math*Emtn*IQ	1	0.264	0.264	0.57	0.4542
Rdng*Emtn*IQ	1	0.564	0.564	1.21	0.2752
Grps*Math*Emtn*IQ	3	0.755	0.252	0.54	0.6604
Grps*Rdng*Emtn*IQ	3	2.180	0.723	1.56	0.2063
Math*Rdng*Emtn*IQ	1	0.351	0.351	0.76	0.3881
Emtn*Bndr	1	0.189	0.189	0.52	0.4738
Grps*Emtn*Bndr	3	0.280	0.093	0.26	0.8570
Math*Emtn*Bndr	1	0.189	0.189	0.52	0.4738
Rdng*Emtn*Bndr	1	0.077	0.077	0.21	0.6481
Grps*Math*Emtn*Bndr	3	0.280	0.093	0.26	0.8570
Grps*Rdng*Emtn*Bndr	3	0.267	0.089	0.24	0.8648
Math*Rdng*Emtn*Bndr	1	0.827	0.827	2.27	0.1368
IQ*Bndr	1	3.164	3.164	10.07	0.0023
Grps*IQ*Bndr	3	0.355	0.118	0.38	0.7731
Math*IQ*Bndr	1	0.452	0.452	1.44	0.2349
Rdng*IQ*Bndr	1	0.689	0.689	2.19	0.1435
Grps*Math*IQ*Bndr	3	1.967	0.656	2.09	0.1091
Grps*Rdng*IQ*Bndr	3	0.205	0.068	0.22	0.8832
Math*Rdng*IQ*Bndr	1	0.127	0.127	0.40	0.5278
Emtn*IQ*Bndr	1	0.014	0.014	0.04	0.8477
Grps*Emtn*IQ*Bndr	3	0.080	0.027	0.07	0.9702
Math*Emtn*IQ*Bndr	1	1.314	1.314	3.48	0.0669
Rdng*Emtn*IQ*Bndr	1	0.352	0.352	0.93	0.3386
G*M*E*Q*B	3	1.930	0.643	1.70	0.1741
G*R*E*Q*B	3	0.667	0.222	0.59	0.6289
M*R*E*Q*B	3	0.127	0.042	0.33	0.5649
Error					
Sub(Grps*Math* Rdng)	64	1007.40			
Sub*Emtn(G*M*R)	64	38.10			
Sub*IQ(G*M*R)	64	37.70			
Sub*B(G*M*R)	64	29.80			
Sub*E*IQ(G*M*R)	64	35.80			
Sub*E*B(G*M*R)	64	23.30			
Sub*Q*B(G*M*R)	64	20.10			
Sub*E*Q*B(G*M*R)	64	24.20			
Total	639	1505.0234	2.357	999.99	0.0000

TABLE 7

ANALYSIS OF VARIANCE TABLE FOR SELF-EVALUATION

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Weights	10	353.857	35.386	28.20	0.0001
Groups	3	47.445	15.815	1.11	0.3501
Grps*Wts	30	98.980	3.299	2.63	0.0001
Error					
Sub(Grps)	76	1081.173			
Sub*Wts(Grps)	760	953.527			
TOTAL	879	2534.982	2.884	99.99	0.0000

TABLE 8

ANALYSES OF VARIANCE OF GROUPS BY WEIGHTS

Group 1--Classroom Teachers

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Weight	10	96.236	9.624	4.12	0.0001
Subjects	19	252.109	13.269		
Weights*Subjects	190	236.491	1.245		
TOTAL	219	584.836	2.671	999.99	0.0000

Group 2--Learning Disabilities Teachers

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Weight	10	137.982	13.798	7.27	0.0001
Subjects	19	117.723	6.196		
Weights*Subjects	190	316.927	1.668		
TOTAL	219	572.632	2.615	999.99	0.0000

Group 3--Psychometrists

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Weight	10	39.366	3.934	1.15	0.3262
Subjects	19	549.109	28.900		
Weights*Subjects	190	165.391	0.870		
TOTAL	219	753.836	3.442	999.99	0.0000

Group 4--Doctoral Level Psychologists and Educators

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Weight	10	179.282	17.928	9.44	0.0001
Subjects	19	162.232	8.538		
Weights*Subjects	190	234.718	1.235		
TOTAL	219	576.232	2.631	999.99	0.0000

TABLE 9

ANALYSES OF VARIANCE OF WEIGHTS BY GROUPS

Variable 1--Age

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	10.638	3.546	1.03	0.3840
Subjects(G)	76	206.250	2.714		
TOTAL	79	216.888	2.745	999.99	0.0000

Variable 2--Sex

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	16.638	5.546	1.42	0.2238
Subjects(G)	76	235.350	3.097		
TOTAL	79	251.988	3.190	999.99	0.0000

Variable 3--Grade

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	14.838	4.946	1.50	0.2209
Subjects(G)	76	219.050	2.882		
TOTAL	79	233.888	2.961	999.99	0.0000

Variable 4--IQ

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	2.300	0.766	0.33	0.8040
Subjects(G)	76	175.500	2.309		
TOTAL	79	177.800	2.251	999.99	0.0000

TABLE 9 (Continued)

Variable 5--IQ Discrepancy

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	29.638	9.879	4.54	0.0057
Subjects(G)	76	165.250	2.174		
TOTAL	79	194.888	2.467	999.99	0.0000

Variable 6--Bender

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	12.700	4.233	1.61	0.1937
Subjects(G)	76	221.500	2.914		
TOTAL	79	234.200	2.965	999.99	0.0000

Variable 7--Emotional Factors

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	12.338	4.113	1.70	0.1725
Subjects(G)	76	177.650	2.338		
TOTAL	79	189.988	2.405	999.99	0.0000

Variable 8--Mathematics Scores

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	16.700	5.567	2.61	0.0569
Subjects(G)	76	153.100	2.014		
TOTAL	79	169.800	2.149	999.99	0.0000

Variable 9--Reading Scores

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	8.550	2.850	1.39	0.2501
Subjects(G)	76	169.000	2.224		
TOTAL	79	177.550	2.247	999.99	0.0000

TABLE 9 (Continued)

Variable 10--Math Grade Discrepancy

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	7.350	2.450	1.23	0.3055
Subjects(G)	76	162.600	2.139		
TOTAL	79	169.950	2.151	999.99	0.0000

Variable 11--Reading Grade Discrepancy

Source	df	Sum of Squares	Mean Square	F Value	PR>F
Groups	3	14.738	4.913	2.09	0.1076
Subjects(G)	76	149.450	1.966		
TOTAL	79	164.188	2.078	999.99	0.0000

VITA

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Doctor of Philosophy

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