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# An analysis of Virginia school psychologists' decisions relative to assessment profiles and recommended handicapping condition

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# AN ANALYSIS OF VIRGINIA SCHOOL PSYCHOLOGISTS' DECISIONS RELATIVE TO ASSESSMENT PROFILES AND RECOMMENDED HANDICAPPING CONDITION

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Brian Alan Keith

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AN ANALYSIS OF
VIRGINIA SCHOOL PSYCHOLOGISTS'
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by

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## DEDICATION

This dissertation, what it represents, and all of the challenges that were met and conquered along the way, is dedicated to my parents, Eyvonne and Jack. They made the dream possible.

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I want to thank my advisor Dr. Roger Ries, whose support, encouragement, and valuable advice throughout this learning experience has been greatly appreciated.

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## ABSTRACT

The purpose of this study was to investigate the classification congruency of Virginia school psychologists as it related to assessment profile analysis and, additionally, to examine assessment instrument rankings and demographic variables when classifying targeted handicapping conditions. The targeted conditions were learning disability, educable mentally handicapped, and attention deficit hyperactivity disorder/attentional problems.

The seventy-two certified Virginia school psychologists who participated in the study were each mailed identical packets containing a letter of explanation, demographic questionnaire, the test profiles for each of the handicapping conditions, and a profile for a non-handicapped child.

The data were analyzed using a discriminant analysis and a logistic regression. Results show that Virginia school psychologists were congruent in identifying LD, EMH, and non-handicapped students but less so in identifying ADHD students. The WISC-R emerged as the most significant test instrument used by the subjects in making a correct diagnosis. The most significant demographic variable in influencing the recommendations was "years of experience."

# AN ANALYSIS OF VIRGINIA SCHOOL PSYCHOLOGISTS' DECISIONS RELATIVE TO ASSESSMENT PROFILES AND RECOMMENDED HANDICAPPING CONDITION

# CHAPTER I

# INTRODUCTION

## A. JUSTIFICATION FOR THE STUDY

In the 1988-1989 school year, school psychologists in the state of Virginia received over 69,000 referrals for special education assessment (Virginia Department of Education, 1989). Although, there are many factors which influence the placement of a child in a special education program (Braden and Algina, 1989), the school psychologist usually has the significant role in administering and interpreting the assessment instruments used in the placement process (Johnson, 1980).

Given the demands of Public Law 94-142 which requires that students be assessed and identified for special services, the need for accurate and consistent responses from school psychologists becomes more imperative.

According to Kastner and Gottlieb (1991):

> The mandates of Public Law 94-142 have resulted in an increased interest in the classification of

> students referred to special education. Unfortunately, the efficacy of identifying special education populations through traditional assessment practices has been problematic (p. 19).

Despite the critical nature of the role assigned to the school psychologist, "...research has indicated that consistency among classifications of school psychologists is often lacking" (Ward, Ward, & Clark, 1991, p. 90). Continued research in the field is an ongoing necessity in order to identify the factors that contribute to the lack of congruence within a group of highly trained professionals.

This study will add to and expand upon the existing body of literature regarding the congruency of school psychologists in classifying, diagnosing, decision-making, and using assessment instruments in the process of identifying children with special needs. Additionally, the study will explore the influence of examiner demographic variables on assessment and placement outcome.

## B. STATEMENT OF THE PROBLEM

The purpose of this research was to elaborate on the congruency within the practice of school psychology

in Virginia as it related to the identification and classification of children with special educational needs. Furthermore, assessment rankings and demographic variables were explored to identify their relationships to classification.

The categorical definitions for special education, as well as the methods for identifying or labeling children, have received considerable attention within the past ten years (Safran, Safran, & Rich, 1991). Although much of the controversy over the issues of eligibility and special education placement has focused on the learning disabilities category (Ysseldyke & Algozzine, 1983), problems exist with the other categorical definitions as well (Hallahan, Keller, & Ball, 1986).

Closely aligned with the controversy of eligibility and special education placement is congruency, which according to McDermott (1980), was often insufficient for the identification of handicapping conditions. Reynolds, Wang and Wallberg (1987) have recommended restructuring current categorical programs and assessment procedures in order to reduce the ambiguity and vagueness of handicapping categories. The outcome of this may result in a

reduction of diagnostic errors thus resulting in higher congruency among school psychologists.

As the above literature suggests, congruency, or the lack thereof, within the school psychology profession in the identification of handicapped children is an area of concern. The focus of this study was to determine the degree to which school psychologists who analyzed the same objective test criteria could come to similar conclusions. Additionally, variables such as errors in diagnosis, the use of various assessment instruments, and the influence of examiner demographic variables were explored to determine what effect they may have on congruency.

## C: THEORETICAL RATIONALE

### Measurement of Mental Ability

In 1869 Francis Galton published "Classification of Men According to Their Natural Gifts" and with this the scientific study of the differences between men was initiated (Aiken, 1985). Galton formulated the use of statistical correlation in studying the relationship between heredity and genius, and pioneered the "systematic investigation of individual differences

between people" (Cohen, et al., 1988, p. 30).

Ten years later, experimental psychologist Wilhelm Wundt founded the first laboratory for the study of psychology at the University of Leipzig. Wundt argued that the appropriate subject matter of psychology was immediate experience or consciousness. This approach to psychology, called structuralism, was concerned with analyzing the conscious experience of sensation, images, and feelings, and determining how they were connected (Davison & Neale, 1986). Wundt attempted to classify human abilities relative to variables such as reaction time, perception and attention span ( Cohen, et al. 1988).

A student of Wundt's, James Cattell, used the term "mental test" in his 1890 publication "Mind", which outlined 50 different instruments that measured various sensory and motor abilities. "Foreseeing the practical application of tests as tools for diagnostic evaluations, he tried to compile a battery of tests that could be used to evaluate people" (Sattler, 1988, p. 39). According to Sattler, Cattell made a valuable contribution to the field of psychological assessment by demonstrating that mental ability could be studied experimentally and practically.

During this same time period, Ebbinghaus was conducting experiments on the development of memory. Using nonsense syllables, Ebbinghaus studied the effects of list length on learning time, practice effects on learning, and the learning and memory of serially ordered items (Anderson, 1985).

Using the advances made by other researchers in the field of learning and cognitive development, the idea that intelligence could be quantified was postulated by Binet and Simon in 1905. The Binet-Simon Scale "might be considered the first practical intelligence test, for the items were ranked in order of difficulty and accompanied by relatively careful instructions for administration. Unlike previous attempts, the scale reflected some concern with age-based cognitive development" (Sattler, 1988, p. 40).

The first widescale use of test instruments for classification purposes in the United States was implemented in 1917. Yerkes, in response to the need of the government to assess military recruits who were responding to the nation's entry into World War I, published the Army Alpha and Army Beta tests which purported to measure verbal and nonverbal intelligence, (Aiken, 1985). The use of these instruments laid the

foundation for future mental testing since they demonstrated the usefulness of identifying various mental abilities.

The belief that mental abilities could be measured in infants and children was held by Gesell who in 1940 published the Gesell Scale. Using this scale, behavior was divided into five broad areas: fine motor, gross motor, language, adaptive, and personal-social skills. In 1949 the Wechsler Intelligence Scale for Children was published (Wechsler, 1949). This instrument purported to measure verbal, social and visual-motor adaptability and yielded a verbal, performance, and full scale IQ.

In 1975 Public Law 94-142, the Education for All Handicapped Children Act, was implemented. The law calls for, among other items, that "testing and evaluation procedures used for the purposes of evaluation and placement of handicapped children be selected and administered..." (Federal Register, August 23, 1977, Vol. 42, No.163, p. 42496, 121a.530.). The Law implies the existence of mental abilities which can be measured and classified. The theoretical constructs that define achievement and ability, and the means which are employed to quantify and classify those

attributes, are to be used in an attempt to promote educational opportunity and equality.

Congruency

McDermott (1980) postulated that "the task that school psychologists and other child diagnosticians would appear to have is one of determining which of a variety or combination of etiological, descriptive, and prognostic formulations best identifies a child's problem, so as to expedite the most appropriate remedy. Logic demands that, if some diagnoses are more important than others, professionals sensitive to this fact would attempt to accord to some reasonable degree of agreement as to which are the more appropriate diagnoses for various problems; such agreement is referred to as diagnostic agreement" (p. 12). Furthermore, McDermott assumed that reasonable congruence requires that if a number of psychologists review the same assessment information, there should be significant agreement as to the diagnoses.

Commenting on the outcome of his research in 1980, McDermott hypothesized that " in general, it is important to note that while the present evidence indicates that the case for diagnostic congruence among

school psychologists is certainly weak and no better than the case for congruence among other child specialties, the extent of incongruence among school psychologists seems no worse than that among associated disciplines" (p. 22). McDermott continued by saying that "the general indication that, first, school psychologists, regardless of training and experience level, demonstrate no consequent diagnostic agreement, and, second, that successively more trained and experienced school psychologists tend to show increasing disagreement, is indeed shocking and would be suspect were it not for several other considerations" (p. 21).

The other considerations that McDermott was referring to are errors of diagnostic decision making which he has identified as being errors of inconsistency and errors of consistency. The former occurs when inconsistent diagnostic standards or inconsistent beliefs about children's problems are utilized by school psychologists. The latter occurs when school psychologists make a generic identification due to insufficient data or because they are unsure of the specific handicaps. For example, a school psychologist would label a student as learning disabled

without identifying the specific learning disability, such as written language.

In 1981, McDermott stated that the "concepts of reliability and validity are familiar to all behavioral and social scientists. Such concepts are applied whenever one considers the requirements of data collection methods, be those methods chiefly observation, psychometrics or historical retrospect" (p. 32). He went on to make the assumption that psychologists use these concepts as well as other important features in designing instruments which measure mental processes. The outcome of measuring mental processes is the diagnostic function. Or, according to Mcdermott, does the diagnosis allow some type of remedy to be used in addressing the child's problem? Does the diagnosis convey to other psychologists or other professionals what is wrong with the child?

To the extent that a diagnosis is valid is the notion that it is congruent with others who would seek to make their own diagnosis. McDermott (1981) stated that "reliability of diagnosis has come to be associated with the agreement among two or more diagnosticians who are rendering diagnoses for the same

children or for matched sets of children. In either event, should a group of diagnosticians be found to have significant agreement in their assignments of diagnostic decisions, it may be said that they have demonstrated diagnostic congruence" (p. 33).

Psychometrics

As mentioned earlier in this discussion, Sir Francis Galton made some very important contributions to the field of psychological testing in the last half of the 19th century. He originated the concepts of regression to the mean and correlation relationships (Sattler, 1988). These concepts allowed the field of testing and psychometrics to develop and define the properties that govern psychological assessment.

Many statistical and psychometrical terms are relative to this study. Basic to understanding the concept of congruency is the need to have some understanding of the statistical properties that govern the use of the instruments which are implemented in an effort to establish congruency. Sattler (1988) provided a good overview of some of the key concepts used in psychometrics. For example, variance is a measure of the range of spread among a group of scores;

the larger the spread the larger the variance. The standard deviation is the extent to which scores deviate from the mean and is obtained by deriving the positive square root from the variance. Correlations are used to describe the degree of association between two variables and can be used in a regression equation in an attempt to predict the score of one variable if the score on another variable is known. Age-equivalent and grade-equivalent scores are measures of the average score obtained on a test by children who are at different ages or in different grades. Percentile ranks are scores that are used to determine the position of an individual relative to the specified sample. Raw scores that have been transformed so that they now have a mean and standard deviation are standard scores. The standard error of measurement is an estimate of the amount of error that surrounds the obtained score of an examinee on a particular measure. A large standard error of measurement typically means a less precise measurement.

In summary, the theoretical basis for congruency or classification of individual differences and similarities was initiated by Galton in 1869. He, along with other psychologists and scientists, was

interested in identifying and studying the mental processes which at that time were the essence of thought (images, consciousness, etc.). Cattell saw the advantages of using instruments to identify the mental abilities and compiled a list of over 50 assessment instruments. The use of assessment instruments continued to be developed for educational and military purposes. With the passage of Public Law 94-142 in 1975, the need to evaluate and classify children became even more critical within the profession of school psychology. McDermott (1980) argued that the diagnosis and classification of children within the profession of school psychology is a matter of fundamental importance.

## D. DEFINITION OF TERMS

### Classification congruence

The appropriateness of classification is the degree to which the classifiers (in this case, school psychologists) agree with one another in their classification activities. Congruence simply demands that if several school psychologists observe the same characteristics or analyze the same test profiles, they will agree with one another in their classifications

(McDermott, 1980).

Learning Disability

> 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 to 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, of mental retardation, emotional disturbance, or of environmental, cultural, or economic disadvantage (USDE, 1977, p. 65,083).

Mental Retardation

Mental Retardation refers to "significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period" (Grossman, 1983, p. 1). For educational purposes, the category educable mentally retarded or handicapped refers to students who are capable of benefitting from instruction in the basic academic areas such as reading or mathematics (EMR or EMH; IQ = 50-75) (Taylor & Sternberg, 1989).

Attention Deficit Hyperactivity Disorder

The essential features of this disorder are developmentally inappropriate degrees of inattention, impulsiveness, and hyperactivity.

Consider a criterion met only if the behavior is considerably more frequent than that of most people of the same mental age.

A. A disturbance of at least six months during which at least eight of the following are present:

(1) often fidgets with hands or feet or squirms in seat (in adolescents, may be limited to subjective feelings of restlessness)

(2) has difficulty remaining seated when required to do so

(3) is easily distracted by extraneous stimuli

(4) has difficulty awaiting turn in games or group situations

(5) often blurts out answers to questions before they have been completed

(6) has difficulty following through on instructions from others (not due to oppositional behavior or failure of comprehension), e.g., fails to finish chores

(7) has difficulty sustaining attention in tasks or play activities

(8) often shifts from one uncompleted activity to another

(9) has difficulty playing quietly

(10) often talks excessively

(11) often interrupts or intrudes on others, e.g., butts into other children's

games

(12) often does not seem to listen to what is being said to him or her

(13) often loses things necessary for tasks or activities at school or at home (e.g., toys, pencils, books, assignments)

(14) often engages in physically dangerous activities without considering possible consequences (not for the purpose of thrill-seeking), e.g., runs into street without looking. NOTE: The above items are listed in descending order of discriminating power based on data from a national field trial of the DSM-III-R criteria for Disruptive Behavior Disorders.

B. Onset before the age of seven.

C. Does not meet the criteria for a Pervasive Developmental Disorder.

Criteria for severity of Attention-deficit Hyperactivity Disorder:

Mild: Few, if any, symptoms in excess of those required to make the diagnosis and only minimal or not impairment in school and social functioning.

Moderate: Symptoms or functional impairment intermediate between "mild" and "severe."

Severe: Many symptoms in excess of those required to make the diagnosis and significant and pervasive impairment in functioning at home and school and with peers. (American Psychiatric Association, 1987, pp. 50-52.)

## E. RESEARCH QUESTIONS

1. To what degree are Virginia School Psychologists congruent in identifying learning disabled students, educable mentally handicapped students, and students with attentional problems?

2. Will Virginia School Psychologists display a significant dispersion in rating (in order of importance) test instruments when identifying fundamental learning problems?

3. Will Virginia School Psychologists display a wide range of variability in making recommendations for handicapping conditions as a factor of key demographic variables (i.e. level of training, years of experience, case load, urban versus rural)?

## F. SAMPLE DESCRIPTION AND GENERAL DATA GATHERING PROCEDURES

For the purposes of this research project, the targeted population sampled were Virginia Certified School Psychologists selected randomly from the Virginia Department of Education Directory (1990-91). After having assigned a number to each of the names appearing in the directory, a random selection process was executed by drawing 125 numbers from a container which held all of the numbers.

After the selection process of the subjects was completed, a packet of information and assessment profiles was mailed to each psychologist, who in turn, was asked to complete and return it to the investigator. One-hundred ten packets were sent out initially with 15 being held in reserve in the event they were needed. A return rate of 65% (72 out of 110) was obtained.

# CHAPTER II

# REVIEW OF THE LITERATURE

## A. CLASSIFICATION AND CONGRUENCY

Historically, in order to successfully manage the wide range of abilities and various levels of children in school, institutions have grouped children according to their ability to perform academically. Selecting children for placement in particular groups is an inevitable activity in educational institutions (McDermott, 1982).

> Psychologists in the schools are frequently called on to make critical classification decisions with respect to the intellectual, academic, and socio-emotional status of children. In most states, school psychologists are expected to provide key decisions regarding the placement or programming for exceptional children . . . (McDermott, 1982, p. 245).

In the evaluation and classification of children for special services, the existence of diagnostic

errors is an area which has been explored by McDermott (1981). He has referred to two categories of errors that he has labeled "errors of inconsistency and errors of consistency" (p. 31).

McDermott (1981) identified four types of errors of inconsistency. The first one he referred to is "inconsistent decision rule" (p. 34). This occurs when psychologists examine the same exact test data but come to different conclusions. He states that they arrived at different conclusions because they used different criteria in making their decisions. For example, different states may use different eligibility criteria for the category of learning disabled. The second error is "inconsistent theoretical orientation" (p. 35) which happens when psychologists employ differing theoretical principles to explain an outcome (i.e., behavioral vs. psychodynamic). "Inconsistent weighting of diagnostic cues" (p. 36) was the third source of error and occurs when too much importance is attached to a specific cue. For instance, too much emphasis may be placed by the psychologist on a behavior rating scale completed by a teacher who wants a child out of his classroom. "Inconstancy of diagnostic style" (p. 38) refers to errors made by psychologists who develop

a tendency to change their diagnostic decision-making tactics. For example, a psychologist may spend only ten minutes analyzing the results of an IQ measure one time and then spend 45 minutes a week later analyzing another IQ test on another child.

McDermott (1981) identified two errors of consistency. The first error was "preference for unverifiable or inexclusive diagnoses" (p. 39). Specifically, this happens when a psychologist offers an explanation for a child's behavior but then fails to provide adequate descriptions of how to remedy the problem. "Preference for a determinative diagnostic posture" (p. 40) refers to the practice of identifying a child with a label that is popular when a more accurate diagnosis is not or cannot be made.

Other factors appear to contribute to incongruency as well. Huebner (1985), while investigating the impact of rural vs. urban settings on school psychologists, concluded that rural psychologists have higher academic expectancies of students in their schools than do their urban counterparts. This could directly impact the use of achievement-ability discrepancies when making recommendations for a learning disability placement.

Ward, et al. (1991), while examining classification decisions concluded that "school psychologists with a behavioral referral question and more years of experience were less likely to render a correct classification" (p. 89). It appears that the nature of a referral question as well as the years of experience as a school psychologist have some effect on placement outcome.

Frequently, school psychologists are called upon to provide test scores that will assist in determining a child's eligibility for special education (Braden & Algina, 1989). Although there are many factors which influence the placement of a child in a special program "test scores often serve as the primary criteria for determining eligibility," (p. 5). Other factors such as previous identification may affect congruency. For instance, Walker, Singer, Palfrey, Orza, Winger and Butler (1988) concluded that a student's original primary classification was the strongest predictor of reclassification at a later date.

Clarizo and Higgins (1989) in their research involving 83 school psychologists concluded that psychologists routinely rely on one or two criteria when considering the identification of a handicap.

Utilizing the Wechsler Intelligence Scale for Children - Revised, the Wide Range Achievement Test, The Bender Gestalt Test, an Incomplete Sentence Test, a behavior rating scale, classroom observation and informal interviews, psychologists generally relied on one or two of the criteria from the battery of instruments when considering the severity of emotionally disturbed students.

Hannaford, Simon, and Ellis (1975) determined that special education teachers and school diagnosticians typically made placement decisions based on a student's chronological age, the teacher's referral question and test scores obtained from the Wechsler and Binet IQ measures and the Wide Range Achievement Test. However, Smith and Knoff (1981) concluded that psychologists and other professionals allowed IQ scores to have the most significant impact in placement decisions.

Carline (1983) studied the classification congruency of ten school psychologists working in the Puget Sound Basin school district of Washington State. Each psychologist was asked to review 120 cases of students who were being considered for placement in learning disabilities programs. Statistical analysis showed a high correlation between the type of test

instruments examined and the final recommendation. Congruency was obtained by the psychologists who used the individual test cues in making their determinations.

Ward, et al. (1991) studied the classification agreement of 175 school psychologists in Pennsylvania. The psychologists were asked to classify five case studies based on intelligence, achievement, and behavioral measures. The percentage of total correct classifications was 66.9%. They concluded that a lack of congruence among school psychologists' classification was evident.

Foster, Ysseldyke and Thurlow (1983) suggested that one of the major determinants affecting the classification of a student was the nature of the referral question. For example, students referred for behavioral problems stood a greater chance of being diagnosed as emotionally disturbed than were students who were referred for other academically related reasons. Furthermore, the specific recommendation (learning disabled, emotionally disturbed, etc.) of the teacher or principal who served on the decision making committee was followed in the majority of cases.

In their study on the actuarial classification of

children research in 1989, Macmann, Barnett, Lombard, Belton-Kocher, and Sharpe came to several conclusions. First, the use of "time honored standards for evaluating the reliability of test instruments for various assessment purposes have not been linked systematically to the analysis of educational interventions and decision errors" (p. 40). They further suggested that test data should never be used as the "sole or primary basis for decisions that have serious consequences for individuals." Another conclusion was that in all probability, the reliability of decisions would not improve sufficiently, as a function of more psychometrically sound test instruments.

McDermott (1980), in a research study involving 72 students, interns, and school psychologists, found that the school psychologists were unable to agree on classifications of children. So incongruent was their decision making as a group, that agreement never approached significant levels. In 1982, Flor illustrated that not only were school psychologists unable to attain classification agreement among themselves, but agreement was even more difficult to attain when made by a child study or interdisciplinary

team. As incongruent as school psychologists are among themselves, other related disciplines (teachers, principals, administrators, school counselors) are even less congruent.

O'Reilly (1989) examined the recommendations of 40 practicing school psychologists who were asked to review a psychological report on a child being referred for either a learning disabilities program or placement in a gifted program. O'Reilly noted that the reason for referral resulted in significant levels of bias regarding assessment and recommendation of the psychologist.

Frame, et al. (1982) measured agreement among 24 school psychologists who assessed a simulated learning disability profile. Agreement was found to be only moderately high for diagnosing or recommending placement in a learning disabilities classroom.

Pfeiffer (1980) analyzed the decision-making process of a child study team and noted that there was an unsystematic analysis of the diagnostic information presented to the child study committee members. As a result, a loosely constructed decision-making/planning process was employed in making the determination.

Huebner (1987) investigated the effects of

specific versus nonspecific referral information and the utilization of test data on school psychologists' decisions relative to special education placement. Eighty-two school psychologists reviewed a hypothetical test profile and made psychoeducational decisions relative to that information. They were also provided with information relative to a specific or nonspecific referral question. Huebner concluded that the knowledge of the referring question did not influence outcome expectations or placement decisions and that reliance on test data was appropriately utilized.

In 1989, Huebner studied the responses of 56 school psychologists who were to interpret norm-referenced test scores on a hypothetical case study. The study suggested that the school psychologists were more likely to recommend special education programs for normal students when percentile scores were used. Huebner hypothesized that school psychologists failed to have a comprehensive understanding of percentile scores when making recommendations.

Epps (1984) analyzed the results of 65 school psychologists who were provided with information on 41 test or subtest scores of 9 school-identified learning disabled and 9 non-learning disabled students. The

accuracy in discriminating between learning and non-learning disabled students was determined to be insufficient. Similarly, Ross (1990) examined the consistency among school psychologists in evaluating discrepancy scores. Forty-three experienced school psychologists were asked to evaluate discrepancy scores. In Ross's study the psychologists made inconsistent choices, failed to use standard statistical procedures for testing differences between scores, and tended to misinterpret percentile ranks as useful for discrepancy analysis.

Dwyer (1982) delineated numerous problems that school psychologists face in diagnosing learning disabilities. Definitional issues of learning disabilities, as well as misidentification and overidentification were areas in which problems still existed. In a later study, Davis and Shepard (1983) concluded that specialists, including school psychologists, tend to overrate the test instruments they use and generally lack familiarity with the psychometric properties of the most commonly used tests.

In 1988, Reschly concluded that current school psychological services relative to identification and

placement of children of special education need to be re-examined. Reform in the classification area is recommended due to serious questions concerning the reliability, validity, efficiency, and effectiveness of the current classification system for handicapped students.

Most recently, school psychologists in Pennsylvania were found to classify non-handicapped students for special education services when "...presented with a behavioral rather than with an academic referral" (Ward, Ward, & Clark, 1991, p.89).

The lack of consistent congruency among a highly trained and specialized profession may be explained by looking at their internal decision-making cues rather than at their training.

## B. LEARNING DISABILITIES

The prevalence of learning disabilities, according to Lerner, 1985, is upwards of 30% of all school age children. This constitutes the largest single special education handicapping condition in the educational system. Here in the State of Virginia, 40% of all students in special education are identified as learning disabled (Virginia Department of Education,

1983).

The field of learning disabilities as a clinical entity came into being in 1963 when the Association for Children of Learning Disabilities was established (Kirk, 1963). The classification of learning disabilities has been helpful in providing a frame of reference for a common problem identified in childhood (Finucci and Childs, 1981).

Research has identified the learning disabled population with deficits in psychological processing as well as deficits in speech and language, visual perceptual skills, sensory motor abilities, use of cognitive strategies and in memory, reasoning and attentional capacities. Students with somewhat lower than average IQ's are also typical of the learning disabled population (Stanovich, 1986). In 1988, Taylor developed an assessment model for identifying learning disabilities which included obtaining measures of cognitive, academic, environmental, and neurological functioning.

The concept of learning disabled has been given various definitions over the past quarter century as researchers and practitioners search for "the cause" and "the appropriate method" of remediation. According

to traditional theories of learning disabilities, deficits in language processes are attributable to "dysfunctions of the central nervous system" (U.S. Office of Education, 1968).

Taylor and Fletcher (1983) suggested that there may be a biological or genetic link to the existence of learning disabilities. However, Keough (1982) concluded that environmental factors appear to be just as important contributors to the existence of a learning disability as does a child's biological status.

The exact etiology of learning disabilities is an answer that will probably not be found anytime soon. The emphasis of recent years has been to operationally define learning disabilities so that they can be identified and remediated within that framework.

According to Sattler (1988) there are three primary aims in the assessment of learning disabled children:

1. Obtain an estimate of general intellectual functioning in order to establish that a child has the capacity for higher achievement;

2. Determine areas of impaired functioning;

3. Identify areas of strength that may help in

the remediation process.

Epps, Ysseldyke and Algozzine (1985) identified three different categories of learning disabilities. In the first category were students who exhibited a discrepancy between ability and achievement. The second category included low achieving students and the third category included students who displayed significant scatter indicating variable performance in a number of areas.

Taylor and Sternberg (1989) underscored the importance of obtaining measures of the following areas: intelligence, achievement, academic skills, and processing skills. The most popular intelligence measures include the Wechsler Intelligence Scale for Children-Revised (WISC-R), the Kaufman Assessment Battery for Children (K-ABC), and the Stanford-Binet Intelligence Scale. Within the achievement domain, the Wide Range Achievement Test-Revised, the Peabody Individual Achievement Test-Revised, and the Kaufman Test of Educational Achievement appear to be popular. Specific academic measures include the Stanford Diagnostic Reading Test, the Stanford Diagnostic Mathematics Test, and the Test of Written Spelling-2. The Detroit Test of Learning Aptitude-2 (DTLA-2) can be

used to investigate processing skills (Taylor and Sternberg, 1989).

In summary, the determining factors in making a learning disability recommendation are varied and despite the availability of quantifiable test instruments the final decision is frequently subjective.

## C. EDUCABLE MENTALLY HANDICAPPED

Incidents of mental retardation during childhood range from 1-3% of the population of all school age children (Robinson & Robinson, 1976). However, in the State of Virginia, 15% of all students in special education are identified as mentally handicapped (Virginia Department of Education, 1983).

Mental retardation has received considerable attention since the early 1800's (Kanner, 1964). Zigler, Balla and Hodapp, 1984, defined mental retardation as an intellectual deficit. Prior to that, Grossman, 1983, defined mental retardation as deficits existing in intellectual, social and developmental areas. The American Association on Mental Deficiency has adopted the latter definition and thus, this is the most widely accepted definition (AAMD; Grossman, 1983).

Estimates of the prevalence of mental retardation during childhood range from 1-5% of the population according to Robinson, 1976.

Due to the diversity of the individuals identified as mentally retarded, professionals developed a classification system which included different subgroups or categories. One such classification system is based on an individual's educational needs. The label educable mentally retarded refers to students who have an IQ or 50-75. The label trainable mentally retarded is comprised of students whose IQ ranges from 25-50. Severely and profoundly mentally retarded consists of students whose IQ is below 25 (Taylor & Sternberg, 1989).

In the majority of retarded individuals, the origins of their mental retardation are not clearly established. There appear to be numerous circumstances and other factors, whether singly or in combinations, which may result in mental retardation. These include such factors as underdevelopment of neurons due to drugs, various viruses, genetic defects, radiation, anoxia, prematurity, low birth weight, head injuries, malnutrition and serious illness during infancy or early childhood (Freiberg, 1990). Other researchers

(Healy, 1990) have identified toxins such as methyl mercury, PCBs, pesticides, as well as alcohol, which may lead to mental retardation.

To classify an individual as mentally retarded, a thorough assessment involving a measure of intelligence as well as a measure of adaptive functioning must be completed. However, the controversy of using an IQ measure to determine the existence of mental retardation is well documented in the 1979 court case of Larry P. v. Riles. The courts decided that the IQ tests used in California to assess mental retardation for the purpose of placing students in special education classes were racially and culturally biased (Freiberg, 1990).

One of the most distinguishing and perhaps obvious features of students with mental retardation is that they experience significant difficulty in most if not all academic areas. Deficits are noted in general cognitive functioning such as acquiring new skills or knowledge, problem solving, and using symbolic means of communication (Taylor & Sternberg, 1989).

Another feature associated with mental retardation includes deficits in memory, particularly in short term memory (McCartney, 1972). Students with mental

retardation have difficulty solving problems in different situations (Payne, Payne & Dardig, 1986) and may experience difficulty in language development but can develop skills necessary to communicate with adults and peers (Pruess, Vadosy, & Fewell, 1987).

Classification of mentally handicapped students requires thorough assessment involving some measure of intelligence as well as adaptive functioning. However, mental retardation classification has undergone criticism due to the cultural bias apparent in current testing instruments which may lead to incorrect diagnoses.

## D. ATTENTION DEFICIT HYPERACTIVITY DISORDER

Attention deficit hyperactivity disorder affects 3-5% of the total school population (Diagnostic and Statistical Manual III-R, 1987). There is little consistency among professionals in identifying ADHD (Virginia Department of Education, 1989).

One of the first attempts to define what is today classified as Attention Deficit Hyperactivity Disorder was postulated by Still (1902). He described a group of children who were quite aggressive, defiant, highly emotional, and showed little self control. Strauss and

Lehtinen (1947) suggested that restless and inattentive behavior resulted from brain damage in children. The term minimal brain damage was used to characterize these acting out and restless children. Recommendations were made for their educational experiences which included reducing distractions in the children's classroom. However, Routh (1978) refuted this recommendation and concluded that there was little evidence for the efficacy of such an approach in these children.

Barkley (1985) discovered that ADHD children have significant problems in complying with parent and teacher commands. Ross and Ross (1982) recognized that by the time ADHD children enter school at age 6, they have developed aggressive, defiant and oppositional behaviors.

Numerous labels have been given to children who have significant deficiencies in sustained attention, impulse control, and the monitoring of self control in situational circumstances. Until recently, hyperkinesis, hyperactive child syndrome, minimal brain dysfunction, and attention deficit disorder all referred to a syndrome of behaviors that the American Psychiatric Association has labeled as Attention

Deficit Hyperactivity Disorder in the Diagnostic and Statistical Manual-III-Revised (1987).

Incidence of this disorder vary but it appears that approximately 3% of the childhood population has this disorder. Children having ADHD display difficulties with attention, lack impulse control, are fidgety and easily distracted. They are also more likely than non-ADHD children to have medical, developmental, behavioral, emotional, and academic difficulties (Cantwell and Satterfield, 1978). Johnston, Pelham and Murphy (1985) found that depression, low self-esteem and poor peer acceptance are more common in ADHD children.

There are numerous proposed etiologies for ADHD ranging from neurotransmitter dysfunctioning to decreased cerebral blood flow to environmental toxins. Biederman, et al. (1987) demonstrated that there may be a hereditary component to the transmission of ADHD from generation to generation.

"The actual diagnostic label 'ADHD' usually is given by physicians (most commonly by pediatricians and child psychiatrists, though sometimes by neurologists) and by psychologists" (The Virginia Department of Education, 1989, p. 10). The Virginia Department of

Education's Task Force Report on "Attention Deficit Hyperactivity Disorder and the Schools" (1989) indicated that in the majority of cases involving attentional problems and activity level, it is the school that must respond initially to the concern.

Furthermore, the task force recognized that the school psychologist is a key member when working with children who are suspected of having attentional deficits. It is the school psychologist who must be able to identify behaviors that reflect attentional problems and then communicate these observations to other professionals.

Medical interventions for ADHD include the use of methylphenidate hydrochloride (Ritalin), pemoline (Cylert), desipramine hydrochloride (Norpramin), dextroamphetamine sulfate, and thioridazine (Mellaril). These pharmacotherapies have been demonstrated to be effective in approximately 60% to 80% of the children who use them (Greenhill,1989). School-based interventions include stimulus reduction, behavior modification and cognitive-behavior modification (Virginia Department of Education's Task Force Report on "Attention Deficit Hyperactivity Disorder and the Schools", 1989).

E. SUMMARY

McDermott (1980) in his study of congruence among school psychologists, found that 25% of the psychologists agreed by mere chance. He concluded by stating that diagnostic congruence in general among psychologists appeared very questionable. Carline (1983) and Huebner (1987) investigated congruency among school psychologists and found it to be sufficient. Ross (1990) and Ward, et al. (1991) also investigated congruency and found it to be insufficient. One of the research questions explored in this study focused on the congruence of Virginia school psychologists in making placement recommendations.

In 1981, McDermott examined what he considered to be diagnostic errors which compromised congruency. One potential source of error is the inconsistent weighting of diagnostic cues. For example, a psychologist may focus too much attention on a given assessment instrument when making a recommendation for a handicapping condition. In line with this is a study by Clarizo and Higgins (1989) who found that psychologists routinely rely on just one or two assessment instruments when making a recommendation for

a handicapping condition. Another focus of this study was to investigate the relationship of assessment instruments to making recommendations for special services.

Another potential source of error affecting congruency is the characteristics of the examiner. Huebner (1985) investigated the roles of rural vs. urban psychologists and concluded that rural psychologists have higher academic expectancies for their students. Such an expectancy could impact on the identification of learning disabilities. Ward, et al. (1991) concluded that in some situations the longevity of working as a school psychologists may negatively influence congruency. The third area of focus for this study was an analysis of selected demographic variables and how they may impact on congruency.

# CHAPTER III

# COLLECTION OF DATA

## A. POPULATION DEMOGRAPHICS

The following section is a summary obtained from the Virginia Department of Education Division of Pupil Personnel Services, 1988-89 annual report, pp. 10-46 (Briggs, Oksman & White, 1989). According to the Virginia Department of Education, school psychologists in the State of Virginia provide services to maximize educational achievement and personal social development of all children. School psychologists utilize and implement applications with clinical, developmental, and instructional principles in understanding the educational processes of children.

Four hundred seventy-three Virginia certified school psychologists completed the 1988-89 annual report. Of this number, 321 are females (68%) and 135 are males (38%). Nineteen (4%) did not respond to the gender question. Four hundred fifteen (88%) indicated they are Caucasian. Twenty-seven (6%) indicated they are black, and four reported being members of other racial groups. Twenty-seven did not respond to the

question regarding race.

Two hundred eighty-four (60%) indicated they held a master's degree and 105 (22%) held an educational specialist degree. Fifty-one (11%) hold Ph.D.'s and another seventeen hold an Ed.D. degree.

Sixty-five percent of the school psychologists reported that they earned over $30,000. Thirty-three did not respond to this question.

During the 1988-89 school year, school psychologists indicated that a total of 69,124 referrals were made. Thirty-one percent included referrals of an academic nature (21,694). Twenty-six percent were triennial evaluations (18,091).

Of the 69,214 referrals made, 41,458 (38%) resulted in assessments. School psychologists attended 31,285 eligibility meetings on new referrals, and 15,458 triennial eligibility meetings.

The average school psychologist in the State of Virginia attends nearly 100 eligibility meetings per school year.

## B. SAMPLE DEMOGRAPHICS

The sample for this research was drawn from the Virginia Educational Directory, 1990-91 edition. The

sample consisted of 110 Virginia Certified School Psychologists chosen at random from the directory. Of this number 72 school psychologists (65%) completed and returned the information.

Each psychologist received a cover letter (Appendix A, p. 80), a demographic questionnaire (Appendix B, p. 82) and a packet of four assessment profiles representing the following:

1. learning disabled (Appendix C, p. 84),
2. educable mentally handicapped (Appendix D, p. 87),
3. attention deficit hyperactivity disorder (Appendix E, p. 90),
4. non-handicapped (Appendix F, p. 91).

The psychologists were asked to complete the questionnaire and the accompanying four test profiles and return them to the researcher within 14 days. At the end of the 14-day period, 72 completed profiles were returned. The return ratio of completed packets was 65%.

The majority of the school psychologists who participated in this research were employed in school systems that had between 1,000 and 5,999 students enrolled. Approximately two-thirds of the respondents

were female with the majority of the psychologists being caucasian. These characteristics are reflective of the population demographics.

The majority of the psychologists indicated that their ages were between 30 and 49. An average of five school psychologists were employed in the school systems. The typical respondent in this research was assigned to approximately 5 schools and had an average of 2,478 students in those schools.

The majority of school psychologists indicated that they have an Educational Specialist degree followed by those with a Master of Arts degree and a Master of Education degree. The average participant in the study had over 6 years of experience in the profession with a majority having between 6 and 15 years of experience. The environment in which most of the school psychologists worked appeared to be rural in nature by an overwhelming majority.

## C. INSTRUMENTATION

The instruments to be used in the collection of the data for this research included the following:

1. Assessment Profile "A" (see Appendix C), which is the profile of a learning disabled

student (FSIQ 91, VIQ 91, PIQ 93, Reading standard score 65, Spelling standard score 62, Arithmetic standard score 74), is taken from Sattler's case studies (Sattler, 1988, p.621) . (See Appendix G, p. 96, permission obtained from Sattler.)

2. Assessment Profile "B" (see Appendix D) is the profile of an educable mentally handicapped student (FSIQ 60, VIQ 60, PIQ 67, Vineland Adaptive Behavior Scale score 64) and is taken from Sattler's case study (p. 668) .

3. Assessment Profile "C" (see Appendix E) is the profile of a student who was identified by a medical doctor and two independent eligibility committees as having attention deficit hyperactivity disorder (FSIQ 92, VIQ 94, PIQ 92, Conner's Teacher Questionnaire T=86) .

4. Assessment Profile "D" (see Appendix F) is the profile of a student who was evaluated and was determined by two independent eligibility committees not to be eligible for any special services (FSIQ 99, VIQ 98, PIQ

100, Reading standard score 95, Spelling standard score 96, Arithmetic standard score 95) .

5. Demographic questionnaire to be completed by each school psychologist (see Appendix B).
6. Cover letter (see Appendix A).

In summary, the sample of 72 Virginia certified school psychologists received a cover letter, demographic questionnaire, and a packet of four assessment profiles. Within each group of profiles, the assessment information was identical.

The psychologists were asked to do three things:

1. Complete the demographic questionnaire,
2. Analyze the information that was provided and recommend which handicapping condition most likely reflects that particular profile. They were not asked to identify the handicapping condition but rather offer a judgment based on the information provided.
3. Rank the importance of the test components provided in making their judgment relative to a suspected condition.

## D. PROCEDURE FOR STATISTICAL ANALYSIS

A discriminant analysis and a logistic regression were used to analyze the data. Both measures were used for all four assessment profiles to investigate the relationship between the eight assessment instruments and the recommended handicapping condition, and also the identified demographic variables and recommended handicapping condition.

The discriminant analysis examined the rankings of the assessment instruments in order to identify predictor variables across the four classification profiles.

The logistic regression coded "1" as "correct" and "0" as "incorrect" when identifying predictor variables from among the assessment instruments for the classification groups.

## E. RESEARCH QUESTIONS

1. What percentage of Virginia School Psychologists were congruent in identifying learning disabled students, educable mentally handicapped students, and students with attentional problems from assessment profiles?

2. Will Virginia School Psychologists display a significant dispersion in rating (in order of

importance) test instruments when identifying fundamental learning problems?

3. Will Virginia School Psychologists display a wide range of variability in making recommendations for handicapping conditions as a factor of key demographic variables (i.e. level of training, years of experience, case load, urban versus rural)?

## F. HUMAN SUBJECTS REVIEW COMMITTEE

This study was reviewed and approved by the School of Education Human Subjects Review Committee. Anonymity was maintained by the investigator throughout the course of the research.

# CHAPTER IV

# ANALYSIS OF RESULTS

## A. STATISTICAL RESULTS

A discriminant analysis and a logistic regression were used to analyze the data. Both measures were used for all four assessment profiles to investigate the relationship between the eight assessment instruments and the recommended handicapping condition, and also the identified demographic variables and recommended handicapping condition. The .05 level of significance was used for a confidence level. Eigenvalues, canonical correlations, and discriminant coefficient values of .30 or greater were considered to be significant. With respect to the logistic regression, the regression coefficients were determined to be significant if their value exceeded the standard error.

## B. RESEARCH QUESTION #1

To what degree are Virginia School Psychologists congruent in identifying learning disabled students, educable mentally handicapped students, and students with attentional problems?

The congruency table below delineates the classification agreement among Virginia school psychologists.

CONGRUENCY TABLE

| Category | LD | EMH | ADHD | NON |
|---|---|---|---|---|
| #Returned | 72 | 72 | 72 | 72 |
| #Correctly Ident | 67 | 68 | 54 | 70 |
| %Correctly Ident | 93 | 94 | 75 | 97 |
| #Incorrectly Ident | 5 | 4 | 18 | 2 |
| %Incorrectly Ident | 7 | 6 | 25 | 3 |

Of the 72 learning disability profiles returned, 67 or 93% were correctly identified as learning disabled. Five or 7% were incorrectly identified. Of those five, four were identified as having an attentional problem and one was identified as not having any learning problem.

Of the 72 educable mentally handicapped profiles returned, 68 or 94% were correctly identified. Four or 6% were incorrectly identified. All four of those

profiles were identified as having attentional problems.

Of the 72 attentional deficit profiles returned, 54 or 75% were correctly identified. Eighteen or 25% were incorrectly identified. All eighteen of the incorrectly identified profiles were labeled as non-handicapped.

Of the 72 non-handicapped profiles returned, 70 or 97% were correctly identified as not having any learning problems. Two or 3% were incorrectly identified as having an attentional problem.

In summary, the LD, the EMH, and the non-handicapped profiles appeared to have been consistently correctly identified. Conversely, the ADHD profile was correctly identified less consistently thus resulting in a greater number of mis-diagnoses.

B. RESEARCH QUESTION #2

Will Virginia School Psychologists display a significant dispersion in rating (in order of importance) test instruments when identifying fundamental learning problems?

The discriminant analysis and a logistic regression were used to analyze the data. Both

measures were used for all four assessment profiles to investigate the relationship between the eight assessment instruments and the recommended handicapping condition, and also the identified demographic variables and recommended handicapping condition.

The discriminant analysis examined the rankings of the assessment instruments in order to identify predictor variables across the four classification profiles. In this instance, the assessment instruments were ranked from "1" which was "most" important to "8" which was "least" important.

The logistic regression coded "1" as "correct" and "0" as "incorrect" when identifying predictor variables from among the assessment instruments for the classification groups. However, because the assessment ranking were ordered from 1 (most important) to 8 (least important), the logistic regression results were analyzed using this logic. Consequently, predictor variables that were positive and that were significant were actually ranked lower in the assessment ratings. Conversely, predictor variables that were negative and that were significant were ranked high in the assessment rating. The .05 level of significance was used for a confidence level. Eigenvalues, canonical

correlations, and discriminant coefficient values of .30 or greater were considered to be significant. With respect to the logistic regression, the regression coefficients were determined to be significant if their value exceeded the standard error.

An analysis of Table 1a (learning disability profile) indicated that each of the assessment instruments were significant and had some association or importance in function 1 (see tables in Appendix H, p. 109). In function 2, the obtained eigenvalue and canonical correlation were sufficiently low so as to render an interpretation of the data impractical. Table 1b indicated that the Woodcock-Johnson Psychoeducational Battery, the Goodenough-Harris Drawing Test, and the Vineland Adaptive Behavior Inventory were significant predictor variables within the learning disability profile function.

Table 2a reflects the analysis for the EMH profile. The Wechsler Intelligent Scale for Children-Revised and the Conners Abbreviated Teacher Questionnaire were both identified as significant predictor variables within this function. Table 2b, the logistic regression analysis for the EMH profile, indicated that the Wechsler Intelligence Scale for

Children-Revised, the Woodcock-Johnson Psychoeducational Battery, and the Conners Abbreviated Teacher Questionnaire were predictor variables.

Table 3a reflects the canonical analysis for the attention deficit hyperactivity disorder profile. The Wechsler Intelligence Scale for Children-Revised, the Wide Range Achievement Test, the Woodcock-Johnson Psychoeducational Battery, and the Conners Abbreviated Teacher Questionnaire were all identified as significant predictor variables for this function. Table 3b, the logistic regression, did not identify any assessment instruments as significant predictor variables for this function.

Table 4a is the result of the canonical analysis for the non-handicapped profile. The Wechsler Intelligence Scale for Children-Revised, the Woodcock-Johnson Psychoeducational Battery, and the Wide Range Achievement Test-Revised were all identified as significant predictor variables in this function. Table 4b, the logistic regression, did not identify any predictor variables for this function.

In summary, an analysis of all four profiles revealed that each of the assessment instruments was identified as a significant predictor variable at least

once. The Wechsler Intelligence Scale for Children-Revised was identified the most as a significant predictor variable, followed by the Conners Abbreviated Teacher Questionnaire, the Woodcock-Johnson Psychoeducational Battery, and the Wide Range Achievement Test-Revised. The least identified predictor variables were the Bender Visual Motor Gestalt Test and the Conners Abbreviated Parent Questionnaire.

D. RESEARCH QUESTION #3

Will Virginia school psychologists display a wide range of variability in making recommendations for handicapping conditions as a factor of key demographic information (i.e. level of training, years of experience, case load, urban versus rural)?

The participants in this study tended to be female, approximately 40 years of age, white, have an educational specialist degree and work in a rural geographic area.

Table 1c, the canonical analysis of demographic variables for the learning disability profile, indicated that the student population of the school system, the age of the school psychologist, the number

of school psychologists employed, the years of experience that the school psychologist had, and the work environment were all identified as significant predictor variables within this function. The logistic regression (table 1d) indicated that the student population of the school system, the age of the school psychologist, and work environment were significant predictors.

Table 2c, the analysis of demographic variables for the EMH profile, indicated that the age of the school psychologists, the number of school psychologist employed, the number of schools that the psychologist were assigned to, the highest level of education, and the years of experience were significant predictor variables within this function. Table 2d, the logistic regression, identified the gender of the psychologist, the years of experience and highest level of education as significant predictor variables.

Table 3c, which was the discriminant analysis of the ADHD profile, identified the following demographic variables as significant predictor variables: the student population of the school division, age of the school psychologist, the number of schools that the psychologist was assigned to, and the years of

experience as a school psychologist. Table 3d, the logistic regression,identified the student population of the school system, the age of the school psychologist, the number of schools the psychologist was assigned to, the number of students in the schools assigned to the psychologist, and the years of experience as a school psychologist as significant predictor variables.

Table 4c, the canonical analysis of the demographic variables for the non-handicapped profile, indicated that the number of students in the school system, the number of schools that the psychologist was assigned to, the highest level of educational training, and the years of experience as a school psychologist were identified as significant predictor variables. Table 4d, the logistic regression, identified the number of schools assigned to the school psychologist as the only significant predictor variable.

In summary, all of the identified demographic variables targeted for this research were identified as significant predictor variables at least once. The predictor variable identified most frequently was "the number of years of experience as a school psychologist." The following predictor variables were

identified next in frequency: "the student population of the school system", "the age of the school psychologist", and "the number of schools assigned to the psychologist." The "gender of the school psychologist" and the "number of students in those schools assigned to the school psychologist" were identified the fewest number of times as significant predictor variables.

# CHAPTER V

# CONCLUSIONS

## A. SUMMARY OF THE STUDY

The purpose of this study was to add relevant information to the existing body of literature on the consistency of school psychologists in the classification of individuals with special needs. This study examined the degree of congruency and the sources of diagnostic errors which threaten congruency.

Specifically, this study focused on the congruency rate of Virginia school psychologists relative to three handicapping conditions: learning disabilities, the educable mentally handicapped, and attention deficit hyperactivity disorder/attentional problems. Additionally, this study explored the significance of assessment rankings and demographic variables and their influence on placement outcomes.

Congruence (McDermott, 1980) demands that if several psychologists analyze the same test profiles, they will agree with one another in their classifications. However, McDermott (1981) identified

several potential sources of diagnostic errors while other researchers (Huebner,1985) have explored other potential sources (geographic settings) which may threaten congruency.

In this study, 110 Virginia school psychologists were mailed identical packets of information that contained a cover letter, a demographic questionnaire, the test profile of a learning disabled student, the test profile of an educable mentally handicapped student, the test profile of a student with attention deficit hyperactivity disorder, and the test profile of a non-handicapped student. They were asked to make a recommendation or judgment as to handicapping condition; rank, in order of importance, the assessment instruments used in arriving at that recommendation; and complete the demographic questionnaire.

Once the information was collected, a discriminant analysis and a logistic regression were used to analyze the data.

There were three primary research questions which were addressed in this study:

1. To what degree are Virginia school psychologists congruent in identifying learning

disabled students, educable mentally handicapped students, and students with attentional problems?

2. Will Virginia school psychologists display significant dispersion in rating (in order of importance) test instruments when identifying fundamental learning problems?

3. Will Virginia school psychologists display a wide range of variability in making recommendations for handicapping conditions as a factor of key demographic variables?

## B. RESEARCH QUESTIONS AND CONCLUSIONS

### Research Question #1

To what degree are Virginia school psychologists congruent in identifying learning disabled students, educable mentally handicapped students, and students with attentional problems?

In general, it appears that overall Virginia school psychologists, or at least this sample, were fairly congruent at identifying the three targeted handicapping conditions and the non-handicapped profile. Congruency percentages ranged from a low of

75% for the attentional disorder profile to a high of 97% for the non-handicapped profile.

Part of the reason why there were so many misclassifications within the ADHD category could be due in part to the nature of this disorder. Children with this disorder display a wide range of symptoms and to various degrees (Barkley, 1985; Ross & Ross, 1982). There are no single reliable and valid measures of ADHD yet children who display ADHD symptoms often demand and need immediate attention. Another source of error which could account for the large number of misclassifications could be errors of inconsistency (McDermott, 1981).

Perhaps there was a reluctance on the part of many psychologists who took part in this study to label a child ADHD unless they had the opportunity to observe the child in person. Furthermore, when working with children who have ADHD characteristics, the assessment tool of choice would be observations which take place in as many settings as possible and by as many different people as is feasible.

Another explanation for the lack of congruency within the ADHD domain, could be the lack of knowledge and understanding on the part of many psychologists

about ADHD. Another possibility is that because ADHD is a medical condition many psychologist preferred to leave that judgment about ADHD in the hands of a medical doctor.

The conclusions of this study relative to adequate diagnostic congruency are similar to those of Carline (1983) and Huebner (1987) who each concluded that school psychologists were in fact congruent in recommending placement outcomes.

Additionally, however, the results of this study with generally high congruency percentages, is not similar to the findings of Frame (1982) who found that classification agreement was only moderately high for recommending placement in a learning disability classroom. The difference being, perhaps, the potential impact of racial bias in Frame's study, which was not a factor in this study. The current findings do not parallel those of Ross (1990) who concluded that school psychologists typically make inconsistent choices. The difference in findings may have been due to the reliance on discrepancy scores in the Ross study rather than on complete assessment profiles, which may have facilitated the psychologists' in making inconsistent choices. The findings of this study do

not reflect the general conclusions of Ward, et al. (1991) in which congruency across all five case studies in their research was only 66.9%. The congruency rate for this study was 94.6% across the LD, EMH, and non-handicapped profiles. However, the congruency rate for the ADHD profile was only 75%, which is considerably closer to the percentage obtained by Ward, et al. One of the reasons which could account for such a higher percentage in the present study is that the LD and EMH cases were literally text book cases that were clearly representative of their respective handicaps. On the other hand, the ADHD profile represents the case of a student in Virginia who was referred and processed through the identification and classification system.

In summary, it appears that the more clearly defined or more precisely the handicapping condition is described, the greater congruency among the psychologists. For example, the classification of educable mentally handicapped has some specific and clear-cut criteria which do not leave open the opportunity for misinterpretation. The criteria for the most part can be reliably measured and agreed to within the profession. One the other hand, the classification criteria for ADHD is very broad, cannot

be reliably measured and is open for a great deal of discussion within the profession as to what constitutes ADHD and who should diagnose it.

Research Question #2

Will Virginia school psychologists display a significant dispersion in rating (in order of importance) test instruments when identifying fundamental learning problems?

The results of this study indicated that Virginia school psychologists did display a wide range of dispersion when rating the test instruments they considered to be important when identifying certain handicapping conditions. For example, when ranking assessment instruments that were important for the identification of the learning disability profile, all eight instruments were identified as significant.

This dispersion suggests at least two things. First, the school psychologists who ranked the assessment instruments had varying philosophies on the nature of learning disabilities. McDermott (1981) referred to this as inconsistent theoretical orientation. With this being the case, the psychologists ranked the instruments according to their

own belief about what is a learning disability (i.e., intelligence, achievement, psycho-motor). Consequently, the rankings were dispersed with emphasis being place on each psychologists' preferred measure. This could explain why all of the instruments were significant.

A second explanation for the learning disability rankings could be that the psychologists as a group ranked the instruments in a pattern. This would reflect Taylor's (1988) assessment model in which several potential problem areas need to assessed. For instance, the psychologists as a group may have focused on the cognitive, academic, environmental, and neurological components of a learning disability. If this was the case, they may have ranked the assessment instruments in a pattern or manner which reflects this assessment model. Additionally, Stanovich (1986) identified several different learning disabilities such as deficits in psychological processing, in visual perception skills, and in memory--all of which necessitate some type of assessment.

When making a recommendation for the educable mentally handicapped profile, the psychologists appeared to focus on just one assessment instrument;

the Wechsler Intelligence Scale for Children-Revised. This supports the findings of Clarizo and Higgins (1989) who concluded that psychologists typically rely on just one or two assessment instruments when rendering a diagnosis. There appeared to be strong agreement that the intelligence measure was in and of itself significant enough to identify an individual as educable mentally handicapped. This reflected Taylor and Sternberg (1989) who reported that the WISC-R was one of the most favored instruments used in diagnosing mental retardation. What is equally revealing is that the measure of adaptive behavior, which is part of the definition (Grossman, 1983), was not considered to be a significant instrument when assessing or recommending a label of educable mentally handicapped. Perhaps the psychologists were focused only on achievement and ability and the fact that both of these were significantly below average. In this instance, the emphasis placed on the diagnostic cues (McDermott, 1981) appeared to be valid and resulted in a correct classification.

When analyzing the ADHD profile, the psychologists appeared to focus on intelligence, achievement, and behavior. This would be consistent with Barkley's

(1988) approach with assessing ADHD, and suggests that those psychologists who recommended an ADHD identification were focusing on behavioral cues and teacher observations. A possible source of error which may have resulted in less congruency for this classification could have been "inconsistent decision rule" (McDermott, 1981, p. 34). The psychologist may have been employing different criteria for this handicap based on their school system's interpretation of the criteria. Another explanation for this low congruency rate could have been a difference in theoretical orientation (McDermott, 1981) about the causes of ADHD. Some school psychologists may have viewed ADHD as a medical condition which should have been referred out to a medical professional.

Finally, when looking at the non-handicapped profile, the psychologists appeared to base their decisions on the IQ measure and the achievement measure. Apparently, the lack of a discrepancy between achievement and ability, and the fact that all of the other components appeared to fall within the normal range was sufficient to rule a handicapping condition.

In summary, it appears that the assessment instruments which were most frequently considered to be

of some importance in the overall analysis of the profiles were the Wechsler Intelligence Scale for Children-Revised, the Conners Abbreviated Teacher Questionnaire, and the Woodcock-Johnson Psychoeducational Battery.

It is not surprising that the IQ measure was most often cited as an important instrument. School psychologists probably administer more intelligence measures than any other instrument and consequently their comfort level with this instrument appears to be good. The reliability, validity, and flexibility of this instrument at identifying a multitude of academic and learning problems may be why school psychologists rely heavily on this measure.

Based on this study's findings, it appears that when using assessment instruments to identify learning problems, Virginia school psychologists focus on ability and achievement and less on parent observation.

Research Question #3

Will Virginia school psychologists display a wide range of variability in making recommendations for handicapping conditions as a factor of key demographic variables?

The information obtained indicated that yes, Virginia school psychologists did display a wide variation in making recommendations as a function of key demographics. All nine demographic variables targeted for this study were identified at least once as being significant.

However, several demographic variables (number of schools assigned to, student population of school division and age) emerged as being somewhat more important than the others. One demographic variable (years of experience) was most prevalent and is perhaps the most important variable.

The number of schools assigned to a psychologists appears to an important factor. Perhaps having fewer schools allows a psychologists more time to work with a student and to spend more time scrutinizing his or her test results. Closely related to this is having a low student-psychologist ratio. Again, this may allow a psychologist more time to work with a student and experience a less stressful environment which could result in a more accurate test interpretation.

Perhaps the most significant factor influencing a psychologist's decision is "years of experience". In this study there was a definite pattern which indicated

that the number of years of experience a school psychologist had in that profession, the more likely he or she was to make an appropriate recommendation. Having more years of experience appeared to be very helpful when identifying LD, EMH, or ADHD students.

Apparently, the more experience that one has the greater the opportunity one has to encounter various handicapping conditions. This allows a psychologist the hands-on experience to become familiar with and recognize the various patterns within handicapping conditions. The knowledge and professional maturity that can come as a result of experience appears to be an important component in the development of a school psychologist.

## C: LIMITATIONS OF THE STUDY

There are limitations of this study that need to be delineated. First, all of the participants in this study were practicing school psychologists in the state of Virginia. This volunteer group may represent a more competent or conscientious segment within the profession. Second, two of the case studies (LD and EMH) used in this study were published in a textbook that is often used in school psychology training

programs and there is the possibility that the sample population may have been familiar with or recognized the profiles. Furthermore, there was no significant attempt to conceal these profiles.

The sample of 72 may not accurately reflect the entire profession statewide. The overwhelming majority of respondents were from rural geographic areas and subsequently may not reflect the suburban and city school psychologists. Additionally, these psychologists were asked to provide recommendations based on a simulation and consequently they were unable to generate more test data.

Although the level of training of psychologists was obtained, information such as their training program and where they did their internship would have been helpful.

Caution should be used when interpreting the statistical results. All of the variables examined in this study were identified as significant at least once. Although certain variables did emerge as being "more" worthy of explanation, the results must be kept in the context and limitations of sampling a small group within a large profession. Decision making within this professional group is complex and any

attempt to understand their thought processes must be treated very carefully.

## D. IMPLICATIONS FOR THE FIELD OF SCHOOL PSYCHOLOGY

This study indicated that school psychologists in the state of Virginia tend to be congruent in their identification of students with learning disabilities and those who are educable mentally handicapped. To a lesser degree there is classification agreement relative to the ADHD student population. They tend to be most congruent at not labeling a student who was not handicapped as having a handicap. This last finding may be the most heartening.

The results of this study suggest that perhaps training programs may want to emphasize a greater focus on adaptive behavior skills when evaluating students who may be educable mentally handicapped. Along with this, perhaps there should be greater emphasis on parental input in the evaluation process.

Nonethelss, school psychologists in the state of Virginia appear to have some difficulty in identifying students who attentional problems. This suggests that school psychologists should closely analyze and communicate with other related professionals when

assessing students who may have attentional problems. School psychologists in the state of Virginia should continue to have confidence in their colleagues who present them with psychological reports and who make placement recommendations.

## E. IMPLICATIONS FOR FUTURE RESEARCH

Future endeavors in the area of classification and congruency should perhaps focus more on a national level versus the state level. For example, how congruent are school psychologists in North Dakota with psychologists in North Carolina? For the profession to have a positive national impact in the area of classification and congruence, the need to establish national congruence among school psychologists is necessary.

Other endeavors could focus on the other handicapping conditions and the classification agreement rate among school psychologists. Future researchers may want to target on a larger sampling of the school psychology profession in an effort to establish patterns and trends.

This study identified an area in which congruency is lacking. One area of future investigation should

definitely be the identification and classification of students with attention deficit hyperactivity disorder.

Future studies should focus more on the assessment practices of school psychologists. For example, finding out what instruments of choice would be used by psychologists in differing circumstances could help shed light on the decision making abilities of school psychologists. It would help to know as a profession what we consider to be important in the area of assessment and identification.

Finally, future research in the area of classification and congruence should serve to underscore the importance and constant need to maintain and enhance professional skills.

# APPENDIX

# APPENDIX A

Dear Colleague:

I am currently a doctoral candidate at the College of William and Mary. I have chosen to investigate the relationships between assessment profiles and the reliability of decisions made by school psychologists who analyze and interpret the test data. As an adjunct to this, I will also be analyzing the importance attached by school psychologists to the various information provided on the assessment files.

You have been selected at random from the Virginia Educational Directory to participate in this research. According to the directory, you are a Virginia certified school psychologist.

Your participation in this research is of vital importance as the information collected in this study will help the profession of school psychology to better understand how school psychologists make educational decisions and utilize test data.

Your participation in this study will be kept confidential. However, if you desire a copy of the study's findings, a copy will be sent to you by

completing the appropriate space on this demographic questionnaire.

You are asked to do the following:

1. Complete the attached demographic questionnaire.
2. Review the four attached assessment profiles and complete the items on each.
3. Return the completed information in the enclosed, stamped envelope by November 21, 1991.

Thank you very much for your assistance in this research.

Sincerely,

Brian Keith
Doctoral Candidate
(h) (804) 432-9544
(w) (804) 432-4509

Academic Advisor: Dr. Roger Ries
College of William & Mary
Williamsburg, Virginia 23185
(Office) (804) 221-2345

# APPENDIX B

## DEMOGRAPHIC INFORMATION

1. In what school system are you employed? _____

2. Are you employed as a school psychologist? Yes No

If no, stop at this point and return packet information.

3. Student population of school division:

less than 1,000 1,000-5,999 6,000-9,999

10,000-15,999 16,000-19,999 20,000+

4. Gender: M F

5. Race: Caucasian Black Hispanic Asian American Indian

6. Age: 20-29 30-39 40-49 50-59 60+

7. How many school psychologists are employed? _____

8. To how many schools are you assigned? _____

9. Estimate the number of students in those schools.___

10. Highest level of education:

M.A. CAGS M.Ed. Ed.S. M.S. Ed.D. Ph.D.

APPENDIX B

11. Years of experience as a school psychologist:

-5 6-10 11-15 16-20 21+

12. Work environment: urban suburban rural

13. If you wish to receive a copy of the study's findings, please give a name and mailing address:_____

_____

_____

_____

# APPENDIX C

## ASSESSMENT PROFILE A (LEARNING DISABILITY)

Please review the following test data and answer the items at the bottom of the page.

This is the test profile of a 10-year, 9-month-old student in Grade 4.

WECHSLER INTELLIGENCE SCALE FOR CHILDREN-REVISED

| VERBAL SCALE | | PERFORMANCE SCALE | |
|---|---|---|---|
| INFORMATION | 10 | PICTURE COMPLETION | 10 |
| SIMILARITIES | 6 | PICTURE ARRANGEMENT | 12 |
| ARITHMETIC | 9 | BLOCK DESIGN | 10 |
| VOCABULARY | 10 | OBJECT ASSEMBLY | 11 |
| COMPREHENSION | 8 | CODING | 3 |
| DIGIT SPAN | (4) | | |

VERBAL IQ 91 PERFORMANCE IQ 93 FULL SCALE IQ 91

WIDE RANGE ACHIEVEMENT TEST-REVISED

| | | | |
|---|---|---|---|
| READING | STANDARD SCORE | 65 | 1% |
| SPELLING | STANDARD SCORE | 62 | 1% |
| ARITHMETIC | STANDARD SCORE | 74 | 4% |

WOODCOCK-JOHNSON PSYCHOEDUCATIONAL BATTERY

MATH 10% READING 0% WRITTEN LANGUAGE 9%

BENDER VISUAL MOTOR GESTALT STANDARD SCORE 82; 12%

GOODENOUGH-HARRIS DRAWING TEST STANDARD SCORE 70; 2%

VINELAND ADAPTIVE BEHAVIOR SCALES COMPOSITE SCORE 90

APPENDIX C (CONTINUED)

CONNERS ABBREVIATED PARENT QUESTIONNAIRE T=46

CONNERS ABBREVIATED TEACHER QUESTIONNAIRE T=44

1. From the following handicapping conditions, please circle the one which most typically reflects the above assessment profile:

a. Learning Disability

b. Educable Mentally Handicapped

c. Other - Specify other action that you would take: _____

d. None - no handicapping condition is reflected by test data

2. Please rank the importance of the assessment information you used in arriving at your decision. "1" indicates the most important, "2" indicates the next in importance and so on so that "8" indicates the least important.

_____ Wechsler Intelligence Scale for Children-Revised

_____ Wide Range Achievement Test - Revised

_____ Woodcock-Johnson Psychoeducational Battery

_____ Bender Visual Motor Gestalt Test

_____ Goodenough-Harris Drawing Test

APPENDIX C (CONTINUED)

_____ Vineland Adaptive Behavior Scales

_____ Conners Abbreviated Parent Questionnaire

_____ Conners Abbreviated Teacher Questionnaire

# APPENDIX D

## ASSESSMENT PROFILE B (EDUCABLE MENTALLY HANDICAPPED)

Please review the following test data and answer the items at the bottom of the page.

This is the test profile of an 8-year, 2-month-old student in Grade 1.

WECHSLER INTELLIGENCE SCALE FOR CHILDREN-REVISED

| VERBAL SCALE | | PERFORMANCE SCALE | |
|---|---|---|---|
| INFORMATION | 6 | PICTURE COMPLETION | 7 |
| SIMILARITIES | 1 | PICTURE ARRANGEMENT | 3 |
| ARITHMETIC | 3 | BLOCK DESIGN | 2 |
| VOCABULARY | 5 | OBJECT ASSEMBLY | 6 |
| COMPREHENSION | 4 | CODING | 6 |
| DIGIT SPAN | 5 | | |

VERBAL IQ 60 PERFORMANCE IQ 67 FULL SCALE IQ 60

WIDE RANGE ACHIEVEMENT TEST-REVISED

| | | |
|---|---|---|
| READING | STANDARD SCORE | 77 |
| SPELLING | STANDARD SCORE | 67 |
| ARITHMETIC | STANDARD SCORE | 70 |

WOODCOCK-JOHNSON PSYCHOEDUCATIONAL BATTERY

MATH 8% READING 5% WRITTEN LANGUAGE 4%

BENDER VISUAL MOTOR GESTALT STANDARD SCORE 77

GOODENOUGH-HARRIS DRAWING TEST STANDARD SCORE 71

VINELAND ADAPTIVE BEHAVIOR SCALES COMPOSITE SCORE 64

APPENDIX D (CONTINUED)

CONNERS ABBREVIATED PARENT QUESTIONNAIRE T=49

CONNERS ABBREVIATED TEACHER QUESTIONNAIRE T=50

1. From the following handicapping conditions, please circle the one which most typically reflects the above assessment profile:

a. Learning Disability

b. Educable Mentally Handicapped

c. Other - Specify other action that you would take: _____

d. None - No handicapping condition is reflected by test data.

2. Please rank the importance of the assessment information you used in arriving at your decision. 1 indicates the most important, 2 indicates the next in importance and so on so that "8" indicates the least important.

_____ Wechsler Intelligence Scale for Children-Revised

_____ Wide Range Achievement Test - Revised

_____ Woodcock-Johnson Psychoeducational Battery

_____ Bender Visual Motor Gestalt Test

_____ Goodenough-Harris Drawing Test

_____ Vineland Adaptive Behavior Scales

APPENDIX D (CONTINUED)

_____ Conners Abbreviated Parent Questionnaire

_____ Conners Abbreviated Teacher Questionnaire

# APPENDIX E

## ASSESSMENT PROFILE C

## (ATTENTION DEFICIT HYPERACTIVITY DISORDER)

Please review the following test data and answer the items at the bottom of the page.

This is the test profile of a 10-year, 9-month-old student in Grade 4.

WECHSLER INTELLIGENCE SCALE FOR CHILDREN-REVISED

| VERBAL SCALE | | PERFORMANCE SCALE | |
|---|---|---|---|
| INFORMATION | 9 | PICTURE COMPLETION | 10 |
| SIMILARITIES | 10 | PICTURE ARRANGEMENT | 11 |
| ARITHMETIC | 6 | BLOCK DESIGN | 11 |
| VOCABULARY | 11 | OBJECT ASSEMBLY | 9 |
| COMPREHENSION | 9 | CODING | 4 |
| DIGIT SPAN | 5 | | |

VERBAL IQ 94 PERFORMANCE IQ 92 FULL SCALE IQ 92

WIDE RANGE ACHIEVEMENT TEST-REVISED

| | | |
|---|---|---|
| READING | STANDARD SCORE | 88 |
| SPELLING | STANDARD SCORE | 89 |
| ARITHMETIC | STANDARD SCORE | 91 |

WOODCOCK-JOHNSON PSYCHOEDUCATIONAL BATTERY

MATH 48% READING 47% WRITTEN LANGUAGE 49%

BENDER VISUAL MOTOR GESTALT STANDARD SCORE 90

GOODENOUGH-HARRIS DRAWING TEST STANDARD SCORE 85

APPENDIX E (CONTINUED)

VINELAND ADAPTIVE BEHAVIORSCALES COMPOSITE SCORE 87

CONNERS ABBREVIATED PARENT QUESTIONNAIRE T=99

CONNERS ABBREVIATED TEACHER QUESTIONNAIRE T=86

1. From the following handicapping conditions, please circle the one which most typically reflects the above assessment profile:

a. Learning Disability

b. Educable Mentally Handicapped

c. Other - Specify other action that you would take: _____

d. None - No handicapping condition is reflected by the test data

2. Please rank the importance of the assessment information you used in arriving at your decision. "1" indicates the most important, "2" indicates the next in importance and so on so that "8" indicates the least important.

_____ Wechsler Intelligence Scale for Children-Revised

_____ Wide Range Achievement Test - Revised

_____ Woodcock-Johnson Psychoeducational Battery

_____ Bender Visual Motor Gestalt Test

_____ Goodenough-Harris Drawing Test

APPENDIX E (CONTINUED)

_____ Vineland Adaptive Behavior Scales

_____ Conners Abbreviated Parent Questionnaire

_____ Conners Abbreviated Teacher Questionnaire

# APPENDIX F

## ASSESSMENT PROFILE D (NON HANDICAPPED)

Please review the following test data and answer the items at the bottom of the page.

This is the test profile of a 10-year, 0-month-old student in Grade 4.

WECHSLER INTELLIGENCE SCALE FOR CHILDREN-REVISED

| VERBAL SCALE | | PERFORMANCE SCALE | |
|---|---|---|---|
| INFORMATION | 11 | PICTURE COMPLETION | 12 |
| SIMILARITIES | 10 | PICTURE ARRANGEMENT | 12 |
| ARITHMETIC | 10 | BLOCK DESIGN | 8 |
| VOCABULARY | 9 | OBJECT ASSEMBLY | 9 |
| COMPREHENSION | 9 | CODING | 9 |
| DIGIT SPAN | 11 | | |

VERBAL IQ 98 PERFORMANCE IQ 100 FULL SCALE IQ 99

WIDE RANGE ACHIEVEMENT TEST-REVISED

| | | |
|---|---|---|
| READING | STANDARD SCORE | 95 |
| SPELLING | STANDARD SCORE | 96 |
| ARITHMETIC | STANDARD SCORE | 95 |

WOODCOCK-JOHNSON PSYCHOEDUCATIONAL BATTERY

MATH 65% READING 57% WRITTEN LANGUAGE 50%

BENDER VISUAL MOTOR GESTALT STANDARD SCORE 95

GOODENOUGH-HARRIS DRAWING TEST STANDARD SCORE 90

VINELAND ADAPTIVE BEHAVIOR SCALES COMPOSITE SCORE 92

APPENDIX F (CONTINUED)

CONNERS ABBREVIATED PARENT QUESTIONNAIRE T=58

CONNERS ABBREVIATED TEACHER QUESTIONNAIRE T=57

1. From the following handicapping conditions, please circle the one which most typically reflects the above assessment profile:

a. Learning Disability

b. Educable Mentally Handicapped

c. Other - Specify other action that you would take: _____

d. None - No handicapping condition is reflected by test data

2. Please rank the importance of the assessment information you used in arriving at your decision. "1" indicates the most important, "2" indicates the next in importance and so on so that "8" indicates the least important.

_____ Wechsler Intelligence Scale for Children-Revised

_____ Wide Range Achievement Test - Revised

_____ Woodcock-Johnson Psychoeducational Battery

_____ Bender Visual Motor Gestalt Test

_____ Goodenough-Harris Drawing Test

_____ Vineland Adaptive Behavior Scales

APPENDIX F (CONTINUED)

_____ Conners Abbreviated Parent Questionnaire

_____ Conners Abbreviated Teacher Questionnaire

# APPENDIX G

## (LETTER TO DR. SATTLER)

P.O. Box 1105
Chatham, VA 24531
October 25, 1991

San Diego State University
Psychology Department
San Diego, CA 92182

Dear Dr. Sattler:

This is to verify our telephone conversation of October 23, 1991 at 12:45 P.M. Eastern Standard Time. As I indicated to you in our conversation, I am a doctoral student in the counseling/school psychology program at the College of William and Mary in Virginia. I have chosen as my doctoral dissertation to investigate the classification congruency among Virginia School Psychologists relative to the identification of certain special education handicapping conditions.

On the date of our conversation, you granted me permission to use Exhibit 20-5 (p. 621,

"The Profile of a Learning Disabled Student") and Exhibit 21-8 (p. 668, "The Profile of a Mentally Retarded Child"). Both of these case studies appear in your book The Assessment of Children, Third Edition.

As agreed to, I will forward to you a copy of my dissertation findings when those results have been analyzed. If you have any questions, you may contact me at (804) 836-5746 or my academic advisor at the College of William & Mary, Dr. Roger Ries, at (804) 221-2345. Thank you very much.

Sincerely,

Brian Keith
Doctoral Candidate

Permission granted by Jerome Sattler.

# APPENDIX H: TABLES

Tables 1a, 1b, 1c, 1d

Tables 2a, 2b, 2c, 2d

Tables 3a, 3b, 3c, 3d

Tables 4a, 4b, 4c, 4d

Table 1a

Canonical Discriminant Analysis

Profile A-Learning Disability

Assessment Instruments

Function 1 :

Eigenvalue 0.36540  Canonical Correlation 0.5173159

Function 2:

Eigenvalue 0.06206  Canonical Correlation 0.2417380

| Instrument | Discriminant Coefficient | |
|---|---|---|
| | Function 1 | Function 2 |
| WC | 0.39756* | 0.01663 |
| WR | 0.71267* | 0.75525 |
| WJ | 0.71961* | -0.40194 |
| BV | 0.64089* | 0.55119 |
| GH | 0.97780* | 0.04031 |
| VI | 0.72407* | 0.55550 |
| PQ | 0.42452* | -0.50985 |
| TQ | 0.61023* | 0.17871 |

*INDICATES A SIGNIFICANT DISCRIMINANT VARIABLE

Table 1b

Logistic Regression

Profile A-Learning Disability

Assessment Instruments

| Instrument | Regression Coeff. | Standard Error |
|---|---|---|
| WC | 2.79216 | 9.25159 |
| WR | .26050 | .26246 |
| WJ | .36904* | .32655 |
| BV | .50288 | .50598 |
| GH | .48755* | .32532 |
| VI | .48697* | .40924 |
| PQ | -.02118 | .36048 |
| TQ | .19585 | .28649 |

*INDICATES SIGNIFICANT PREDICTOR VARIABLE

Table 1c

Canonical Discriminant Analysis

Profile A-Learning Disability

Demographic Variables

Eigenvalue 0.32887 Canonical Correlation 0.4974738

| Demographic Variables | Discriminant Coefficients |
|---|---|
| STP | 1.68591* |
| GEN | 0.28220 |
| AGE | 0.54793* |
| HMSP | -1.75209* |
| SA | 0.20885 |
| SIS | -0.27443 |
| HE | -0.01893 |
| YE | -0.32925* |
| WE | -0.43743* |

*INDICATES SIGNIFICANT DISCRIMINANT VARIABLE

Table 1d

Logistic Regression

Profile A-Learning Disability

Demographic Variables

| Demographic Variable | Regression Coeff. | Std Error |
|---|---|---|
| STP | .52076* | .40760 |
| GEN | .56082 | .77780 |
| AGE | 1.06487* | .76802 |
| HMSP | -.08485 | .08053 |
| SA | .20565 | .24681 |
| SIS | -.00008 | .00038 |
| HE | -.11460 | .55226 |
| YE | -.42223 | .51332 |
| WE | -.44021* | .39880 |

Table 2a

Canonical Discriminant Analysis

Profile B-Educable Mentally Handicapped

Assessment Instruments

Eigenvalue 0.88262 Canonical Correlation 0.6847080

| Instruments | Discriminant Coefficients |
|---|---|
| WC | 1.06212* |
| WR | 0.25127 |
| WJ | -0.15233 |
| BV | 0.17619 |
| GH | 0.16814 |
| VI | 0.15888 |
| PQ | -0.13025 |
| TQ | 0.30625* |

*INDICATES SIGNIFICANT DISCRIMINANT VARIABLE

Table 2b

Logistic Regression

Profile B-Educable Mentally Handicapped

Assessment Instruments

| Instruments | Regression Coeff. | Standard Error |
|---|---|---|
| WC | -11.04793* | 6.87319 |
| WR | -.62182 | .87769 |
| WJ | 1.93886* | 1.60763 |
| BV | -1.22731 | 1.29363 |
| GH | -.98073 | 1.02320 |
| VI | .13721 | 1.13545 |
| PQ | -.37728 | 1.28762 |
| TQ | -1.33710* | 1.08152 |

*INDICATES SIGNIFICANT PREDICTOR VARIABLE

Table 2c

Canonical Discriminant Analysis

Profile B-Educable Mentally Handicapped

Demographic Variables

| Demographic Variable | Discriminant Coefficients |
|---|---|
| STP | 0.25454 |
| GEN | -0.23884 |
| AGE | 0.42489* |
| HMSP | 0.40679* |
| SA | 0.75953* |
| SIS | -0.11596 |
| HE | -0.78646* |
| YE | -0.45246* |
| WE | 0.10443 |

*INDICATES SIGNIFICANT DISCRIMINANT VARIABLE

Table 2d

Logistic Regression

Profile B-Educable Mentally Handicapped

Demographic Variables

| Demographic Variable | Regression Coeff. | Std. Error |
|---|---|---|
| STP | .60636 | 2.00987 |
| GEN | -5.80914* | 3.83630 |
| AGE | .20853 | .97395 |
| HMSP | .46122 | .70249 |
| SA | .42828 | .47479 |
| SIS | -.00007 | .00124 |
| HE | -5.30937* | 3.02588 |
| YE | -2.05584* | 1.36116 |
| WE | .94427 | 2.60337 |

*INDICATES A SIGNIFICANT PREDICTOR VARIABLE

Table 3a

Canonical Discriminant Analysis

Profile C-Attention Deficit Hyperactivity Disorder

Assessment Instruments

Eigenvalue 1.07894 Canonical Correlation 0.7204072

| Instruments | Discriminant Coefficients |
|---|---|
| WC | 0.43192* |
| WR | 0.43612* |
| WJ | -0.39528* |
| BV | -0.25179 |
| GH | 0.06400 |
| VI | 0.13003 |
| PQ | 0.20165 |
| TQ | 0.77406* |

*INDICATES SIGNIFICANT DISCRIMINANT VARIABLE

Table 3b

Logistic Regression

Profile C-Attention Deficit Hyperactivity Disorder

Assessment Instruments

| Instruments | Regression Coeff. | Std. Error |
|---|---|---|
| WC | -.46347 | 1.86403 |
| WR | -.46824 | 1.76270 |
| WJ | .66455 | 1.87793 |
| BV | -.00818 | 1.77436 |
| GH | -.27795 | 1.76856 |
| VI | -.38320 | 1.76547 |
| PQ | -.49448 | 1.78257 |
| TQ | -.56804 | 1.77414 |

*INDICATES SIGNIFICANT PREDICTOR VARIABLE

Table 3c

Canonical Discriminant Analysis

Profile C-Attention Deficit Hyperactivity Disorder

Demographic Variables

| Demographic Variable | Discriminant Coefficients |
|---|---|
| STP | 0.70733* |
| GEN | -0.07485 |
| AGE | 0.74968* |
| HMSP | -0.09784 |
| SA | 1.2281* |
| SIS | -0.99183 |
| HE | -0.24684 |
| YE | -0.47700* |
| WE | 0.06215 |

*INDICATES SIGNIFICANT DISCRIMINANT VARIABLE

Table 3d

Logistic Regression

Profile C-Attention Deficit Hyperactivity Disorder

Demographic Variables

| Demographic Variable | Regression Coeff. | Std. Error |
|---|---|---|
| STP | .26645* | .23502 |
| GEN | -.03906 | .34156 |
| AGE | .49394* | .28330 |
| HMSP | -.01617 | .04672 |
| SA | .21426* | .09841 |
| SIS | -.00032* | .00016 |
| HE | -.22420 | .30209 |
| YE | -.24520* | .23341 |
| WE | .07023 | .28370 |

*INDICATES SIGNIFICANT PREDICTOR VARIABLE

Table 4a

Canonical Discriminant Analysis

Profile D-Non-Handicapped

Assessment Instruments

Eigenvalue 2.20553 Canonical Correlation 0.8294812

| Instruments | Discriminant Coefficients |
|---|---|
| WC | 1.01605* |
| WR | 0.35096* |
| WJ | 0.72560* |
| BV | 0.27800 |
| GH | -0.05551 |
| VI | -0.18724 |
| PQ | 0.14295 |
| TQ | -0.03546 |

*INDICATES SIGNIFICANT DISCRIMINANT VARIABLE

Table 4b

Logistic Regression

Profile D-Non-Handicapped

Assessment Instruments

| Instruments | Regression Coeff. | Std. Error |
|---|---|---|
| WC | -1.90254 | 4.08433 |
| WR | -.21764 | 2.40554 |
| WJ | -.65035 | 3.34177 |
| BV | -.25028 | 5.68565 |
| GH | .09011 | 3.19010 |
| VI | .13426 | 2.75029 |
| PQ | -.03643 | 4.77849 |
| TQ | .00723 | 4.83005 |

*INDICATES SIGNIFICANT PREDICTOR VARIABLE

Table 4c

Canonical Discriminant Analysis

Profile D-Non-Handicapped

Demographic Variables

Eigenvalue 0.14838 Canonical Correlation 0.359401

| Demographic Variables | Discriminant Coefficients |
|---|---|
| STP | 0.43467* |
| GEN | -0.18299 |
| AGE | 0.00634 |
| HMSP | 0.03240 |
| SA | 1.01572* |
| SIS | -.064831 |
| HE | -0.37617* |
| YE | 0.31022* |
| WE | 0.24419 |

*INDICATES SIGNIFICANT DISCRIMINANT VARIABLE

Table 4d

Logistic Regression

Profile D-Non-Handicapped

Demographic Variables

| Demographic Variables | Regression Coeff. | Std. Error |
|---|---|---|
| STP | .11059 | 6.06156 |
| GEN | .58768 | 6.82095 |
| AGE | .32031 | 1.20683 |
| HMSP | .37267 | 1.21884 |
| SA | 1.57040* | 1.45898 |
| SIS | -.00216 | .00266 |
| HE | -3.80643 | 5.44199 |
| YE | 1.36332 | 2.61273 |
| WE | 1.55520 | 3.32061 |

*INDICATES SIGNIFICANT PREDICTOR VARIABLE

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