# A COMPARISON OF THE WIDE RANGE ACHIEVEMENT TEST 3 AND THE WECHSLER INDIVIDUAL ACHIEVEMENT TEST-SCREENER AMONG LEARNING DISABLED REFERRALS

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A Thesis

Presented for the

Master of Arts

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DEDICATION

This thesis is dedicated to my parents

Mr. Glen Womack Moore Jr.

and

Mrs. Peggy Jane Moore

who have provided me with

support and educational opportunities.

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## ABSTRACT

The relationship between the Wide Range Achievement Test 3 and the Wechsler Individual Achievement Test-Screener was examined. Forty-six students ages 6 thru 12 were given both screeners, at different times, as part of their comprehensive battery. A Pearson Correlation and t-test were computed among paired subtest. Significant correlations were found between the reading, spelling, and arithmetic subtests. The relationship between the reading and spelling subtests were stronger than the arithmetic subtests. Differences were found when eligibility for Special Education was taken into account. These findings suggest that even though the two tests yield significant correlations, differences do occur and need to be researched before these are used interchangeably.

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# CHAPTER 1

## INTRODUCTION

The labeling of children is always a major concern in the education system. The earlier a student with a learning disability is diagnosed, the greater the chance that the programs provided will help the student to progress in their education. However, labeling a child inappropriately could impede a student's learning process and social development by altering their learning environment. Therefore, it is very important that the diagnosis of each student be accurate to ensure that each of those in need of special programs receive it and to appropriate the needed funding for the school system.

Achievement tests along with intelligence tests are the primary assessment tools in the school setting to classify and diagnose students. These tests are used to identify children with special needs as well as evaluate their progress and are essential in diagnosing a learning disability. The Tennessee State definition taken from the Education of All Handicapped Children Act, Public Law 94-142 defines a learning disability as

> a child who has 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 significant difficulties in the acquisition and use of listening, speaking, reading, writing, spelling or performing mathematical calculations is

considered to have a specific learning disability(Special Education Manual, 1993).

Preliminary achievement tests are given initially, rather than a complete battery, to screen for the more obvious weaknesses. This process also aids in the direction of further testing. The Wechsler Individual Achievement Test-Screener (WIAT-S) and the Wide Range Achievement Test-3 (WRAT3) are the two screeners used to measure achievement in many school systems. These two screeners are used interchangeably and it is the decision of the school psychologist to choose which screener will be used in each case. Due to the recency and restandardization of these two tests, there is a growing need for research to explore the relationship between the WIAT-S and WRAT3. The concern is, without substantial research, these tests could lead teachers and psychologists to make ill-advised decisions pertaining to further testing. This, in turn, could affect the outcome of each child's education with faulty diagnosis and misclassification.

Both instruments are being used as screeners, therefore there is a real need to substantiate the accuracy and to explore the relationship between the two tests. This study will help to determine the differences so that the results of the screeners can be used wisely.

# CHAPTER 2

## LITERATURE REVIEW

The term "learning disability" was coined in 1963 by Dr. Samuel A. Kirk. Dr. Kirk was attending a conference in Chicago in support of the Fund for Perceptually Handicapped Children. "Kirk suggested that this term be used to describe children with learning problems in the area of language, communication, and reading" (Cohen, Montague, Nathason, & Swerdlik, 1988, p.491). As a result, the Association for Children with Learning Disabilities (ACLD) was formed (Cohen et al., 1988).

The ACLD in conjunction with other special interest groups lobbied to make legislators more aware of learning disabled children that were not being given educational support under previous legislation. Consequently, in 1969, Congress passed the Children with Learning Disabilities Act (part of P.L 91-230). Under this new legislation funding was provided for teacher training and the establishment of model demonstration programs for learning disabled students. " In 1975, learning disabilities was one of the handicapping conditions included in P.L. 94-142" (Heward & Orlansky, 1992, p.133). The Federal definition for learning disabilities reads:

> 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 calculation. The term includes such conditions as perceptual handicaps, brain injury, dyslexia, & developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, or mental retardation, or of environmental, cultural, or economic disadvantage (Cohen et al., 1988, p.491).

In 1990, the Public Law 94-142 became the basis for the Federal Public Law 101-476, the Individuals with Disabilities Education Act or IDEA (Lerner, 1993). IDEA had an added dimension, which contributed the specifics for the identification of the learning disabled, which reads:

> The regulation states that a student has a specific learning disability if (1) the student does not achieve at the proper age and ability levels in one or more of several specific areas when provided with appropriate learning experiences and (2) the student has a severe discrepancy between achievement and intellectual ability in one or more of these seven areas: (a) oral expression, (b) listening comprehension, (c) written expression, (d) basic reading skill, (e) reading comprehension, (f) mathematics calculation, and (g) mathematics reasoning (Lerner, 1993, p.9).

Since the formulation of the definition that is used in federal law, other definitions have been proposed by various groups and organizations. A committee, The Interagency Committee on Learning Disabilities, was commissioned by the U.S. Congress to develop a definition of learning disabilities. In 1987, the Interagency Committee on Learning Disabilities contributed an extension to the federal definition. The extension's focus was on the inclusion of social skill deficits (Lerner, 1993).

In 1988, the National Joint committee for Learning Disabilities (NJCLD) made a revision of the definition of Learning Disabilities:

> Learning Disabilities is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition of use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a Learning Disability may occur concomitantly with other handicapping conditions or environmental influences, it is not the direct result of those conditions or influences (Sattler, 1992, p.598).

As shown, there are several definitions of the term "learning disability," which have been debated for several years, however universal acceptance has not been met.

Arguments have been made that various terms in the federal definition are ambiguous and open to many different interpretations. One of the most critical issues is indicating how a severe discrepancy between achievement and intellectual ability should be determined. In diagnosing learning disabilities, this numerical component is a substantial part of most states' criteria. Since guidelines are not provided by the Federal law defining what determines significant differences, these methods are chosen at the state level. " The five most common methods for calculating ability-achievement discrepancies are defined in terms of a deviation from grade level, expectancy formulas, scatter analysis, standard score differences (simple-difference method), and predicted-achievement methods using regression formulas" (Flanagan & Alfonso, April 1993, p.26).

Deviation from grade level is described as having a discrepancy between the child's grade-equivalent score on an achievement test and his or her grade placement. Definitions specify a particular minimum value the discrepancy must have in order to be considered severe. The downfall of this procedure is that the same discrepancy means are sometimes different for varying grade levels (Sattler, 1992).

Rather than actual grade placement, another option is expectancy formulas. This procedure uses the expected grade equivalent in a computation of an ability achievement discrepancy. A child's mental age (MA) and chronological age

(CA) are the bases of the expectancy formula. The difficulty with the expectancy formula is that it must rely on the assumption that the correlation between scores on the ability test and scores on the achievement test is nearly perfect. However, this is seldom the case and this is cause for concern (Sattler, 1992).

A more accepted procedure is a predicted-achievement method using a regression equation to determine expected scores. The difference between the expectancy formula and the regression equation is the latter takes into account the regression-to-the-mean effects, " which occur when the correlation between two measures is less than perfect, and the standard error of measurement of the difference score" (Sattler, 1992, p. 607). Since the predicted-achievement method is not sensitive to multiple tests comparisons and does not measure discrepancies perfectly, caution must be used by examiners when defining significant differences. However, the predicted-achievement method remains the most recommended method (Flanagan & Alfonso, 1993).

A scatter analysis, another method used, is simply plotting all scores to detect any abnormalities in an individual's pattern. However, caution must be taken with scatter plots. "A good deal of scatter may be attributed to measurement error rather than to clinically significant differences in mental abilities" (Murphy & Davidshofer, 1991, p.417).

The last method is to compare standard scores on two tests. A significant discrepancy criterion level is set between the academic achievement test score and the general ability test score. The analysis requires that the two tests be based on the same standard score distribution (Sattler, 1992). A downfall, which needs to be considered, is that it does not take measurement errors into account (Flanagan & Alfonso, 1993).

As noted earlier, each state sets their guidelines for identifying Learning Disabled children. Tennessee's criteria reads:

> A child exhibits a significant discrepancy between achievement and cognitive/intellectualfunctioning when provided with learning experience appropriate for the individual's age and ability levels. It is posited as evidence of an internal processing deficit and identified in lay terms as a learning disability. A significant discrepancy is defined as a difference of at least more than one standard deviation between cognitive/intellectual functioning and measured achievement in one or more of the following area: listening comprehension, oral expression, basic reading skill, reading comprehension, written expression, mathematics calculation, and mathematics reasoning (Special Education Manual, 1993, Chap 16, p.15).

Since Tennessee uses a numerical discrepancy between test measures, it is important to investigate the reliability and usefulness of the measures using this method.

Numerous psychologists have analyzed the results of achievement tests in the past and have formulated hypotheses as to whether or not the results were yielding useful information. They have sought to determine if the tests were reliable and valid as well as compare different tests to determine the differences and to explore the relationship between tests.

In 1981, Grossman raised the issue that "while the use of the WRAT standard scores as a criterion in the identification of underachievment is a preferable method compared to the use of grade level designations, limitations with regard to sole reliance upon such scores as diagnostic indicators of underachievment are evident"(p.144). More specifically, the study examined the normative tables of the WRAT, particularly at the lower chronological age levels (eg., 5-0 to 6-11), revealing that even when standard scores are used it remains difficult to identify five and six year old underachievers. The article also provides evidence that the skills required by 5 and 6 year olds are so basic that the question must also be raised "regarding the accuracy of the WRAT in reflecting actual achievement in the classroom for children in Kindergarten, first, and perhaps second

grade" (p.145). The curriculum of Kindergarten through second grade has developed to the point that it would be very difficult for even the slow learners not to score well on the WRAT. Even those with specific learning disabilities are difficult to diagnose at early ages with the scores obtained on the WRAT (Grossman, 1981). Then, in later years the children are pronounced with a disabilities and precious years have been forfeited.

Mishra (1981) investigated the reliability and concurrent validity of the WRAT in 191 fourth and fifth grade Mexican-American children. The reliability coefficients for all three WRAT subtests were obtained by the split-half technique. The Spearman Brown formula was used to correlate the even and odd items throughout the test. The reliability coefficients were high for all WRAT subtests, ranging from .91 to .98 (Mishra, 1981). The knowledge of a test's reliability and validity is a necessity in the assessment of all children. This data encouraged the use of the WRAT in psychoeducational assessment.

Tramill, Tramill, Thornthwaite, and Anderson (1981), performed a correlational study using the WRAT, the Peabody Individual Intelligence Test (PIAT), the Slosson Oral Reading Test (SORT), and the Wechsler Intelligence Scale for Children-Revised (WISC-R) in low functioning referrals. All correlational analyses were performed using standard scores.

A strong correlation of r=.75, p<.001, was achieved between the WRAT and the PIAT. The study indicated the primary element measured by these two instruments is verbal fluency with both of these achievement tests correlated with the WISC-R. Both instruments were consistent with few exceptions. The correlations with the PIAT and the object assembly and block design were slightly higher than that of the WRAT (Tramill et al., 1981).

A study by Kaye and Baron (1987), compiled data useful for informed reevaluation decisions that concern Specific-Learning-Disabilities (SLD) children. The stability of WISC-R and WRAT scores were assessed over a period of approximately three years in two samples of SLD children; one group of part-time SLD students and a group of full-time SLD students.

> The WISC-R IQ reliabilities were high with the exception of verbal IQ in the SLD-PF (full-time) group. The WRAT scores were less reliable. In the SLD-P (part-time) group WRAT mathematics scores decreased over time, and in the SLD-PF group the WRAT spelling test scores decreased over time. A regression analysis, that used the time in the SLD programs, revealed unimpressive effects to the WRAT and WISC-R scores (p.257).

In 1991, Smith, Smith, and Dobbs studied the relationship between the Peabody Picture Vocabulary Test

(PPVT) to the revised WRAT. The subjects were referred for diagnostic assessment due to academic difficulty. The children were being tested in order to determine their eligibility for special education services. Correlations between the PPVT and the WRAT were significant. The results revealed a higher correlation between the WRAT-R and the PPVT-R arithmetic subtest than the reading and spelling subtests. "The PPVT-R and WRAT-R are useful as adjuncts to the screening process, it was noted they would not be acceptable as the sole criterion for identification of educationally handicapped students" (p.56).

McLeskey and Waldron (1991) considered the ramifications of using statewide guidelines for the identification of students with learning disabilities. Prior to the implementation of statewide learning disability guidelines," data were collected from multi-disciplinary team reports on 718 students with learning disabilities who were referred and labeled during the 1983-84 school year" (p.501). After the statewide guidelines were in place, data were collected from 790 students who were identified during 1987-88 school year. The study revealed that the statewide guideline changed the characteristics of the students significantly. However, even after the guidelines were implemented, almost one-third of the identified students in 1987-88 did not meet the stated criteria for identification. The most concerning aspect of this study is the general lack

of consistency with which learning disabilities were identified (McLeskey & Waldron, 1991).

Prewett, Bardos, and Fowler (1991) studied the relationship between two brief achievement tests, the Kaufman Test of Educational Achievement-Brief Form (KTEA-BF) and the Wide Range Achievement Test (WRAT-R) Level 1, and the Kaufman Test of Educational Achievement- Comprehensive Form (KTEA-CF). The subjects were 91 referred elementary school-aged children. The study was designed to determine if the KTEA-BF had greater utility screening purposes than the WRAT-R. The results showed the

> WRAT-R Level 1 reading, arithmetic, and spelling subtest scores were significantly lower than the scores obtained on corresponding subtests on the KTEA-BF and KTEA-CF. The WRAT-R Level 1 reading, arithmetic, and spelling subtest scores averaged 11.36, 3.67 and 6.60 points, respectively lower than the scores on the similar KTEA-CF subtests for specific learning disabled group(p.733).

Also intercorrelations among tests found the mean WRAT-R arithmetic score was significantly higher than the mean WRAT-R reading and spelling scores (Prewett et al., 1991).

A comparison of arithmetic measures with learning disabled students was reviewed in 1985 by Estes, Hallock, and Bray. Sixty-nine learning disabled students were evaluated with four measures of arithmetic skills. These

four measures were the arithmetic subtests of the Wide Range Achievement Test (WRAT) and Peabody Individual Achievement Test (PIAT), the Key Math, and teacher's ratings.

The subjects were 69 students enrolled in a school for learning disabled students. All of the children qualified according to state guidelines, the state guidelines require a discrepancy greater than one standard deviation between scores on an achievement test and an intelligence test (Estes et al., 1985).

The students were administered the PIAT, WRAT, and Key Math. Each mathematics teacher was asked to give each student's level of achievement in terms of grade-equivalent scores. Correlations were fairly high between all arithmetic measures ranging from .64 to .82, revealing strong content validity on the four measures. The study concluded that all four measures can contribute to the assessment of Learning Disabilities (Estes et al., 1985).

The WRAT has a lengthy history and significant amount of research that the WIAT does not have, being a newly standardized measure. Flanagan and Alfonso (1993) presented an article which provides tables of WIAT subtest and composite predicted-achievement standard scores based on WISC III Verbal and Performance IQ's. The tables ensure greater reliability to accurately assess and diagnose learning disabilities.

Under certain circumstances the Full Scale IQ may be misleading, in such cases the Verbal Intelligence Quotient (VIQ)-Performance Intelligence Quotient (PIQ) may be used. The VIQ is considered the best estimate of ability for those who have fine motor or visual motor difficulties or those who can not perform under time restraints. The PIQ is regarded as the best estimate of ability for those who are culturally disadvantaged, of limited English proficiency, hearing impaired, or speech/language delayed.

In order for the tables to be used, examiners must calculate a predicted-achievement score. Those scores, in accordance with the critical values tables, can facilitate the determination of significant ability- achievement discrepancies. The article was presented to assist exaimners in the use of tables along the predicted-achievement method. It would assist examiners in determining whether the quantitative component of the federal definition had been met (Flanagan & Alfonso, 1993).

Another article was completed by Flanagan and Alfonso in 1993. This study provided tables of critical values for determining statistically significant discrepancies between the Wechsler Verbal/Performance IQ and Wechsler Individual Achievement Test (WIAT) subtest and composite scores based on a predicted achievement method. Benefits of the WIAT are discussed along with issues regarding the use of discrepancy formulas in diagnosing learning disabilities.

The WIAT is the first achievement battery to include the seven areas of achievement used to diagnose a learning disability according to public Law 94-142. Another benefit of the WIAT, in conjunction with the Wechsler Intelligence scale for children, is the increased reliability that results from using co-normed data to calculate discrepancies in the assessment and diagnosing of learning disabilities.

A great concern in the field of education is the variability within and across states regarding procedural guidelines for the assessment of learning disabilities. The achievement-ability discrepancies appear more common across states, however it does not need to be the sole criterion for diagnosing learning disabilities. "It is necessary for the examiner to assess the Federal definition's remaining components such as task failure, etiological factors, exclusionary factors, and dysfunctions in one or more of the psychological processes"(Flanagan & Alfonso, 1993, p.130).

Flanagan and Alfonso (1993) suggested there were times the full scale IQ was not the best estimate of ability. Situations occur in which the verbal or performance IQ may be a more accurate estimate of a child's ability. Formulas for obtaining reliable differences using Verbal and Performance IQ and WIAT subtest composites are provided by the WIAT manual, however critical value tables are not provided. They have found "accuracy in determining test score discrepancies is increased in states that not only

recommend the use of regression formulas but also provide simplified means for determining discrepancies, such as tables"(p. 125).

In 1984, Jastak and Wilkinson conducted a study involving the WRAT-R and the WIAT-S. The sample included 251 children aged 7 through 19 years. The children were divided into two groups that followed the age-based levels of the WRAT-R. Correlations, means, and standard deviations were obtained for each group and for the total group. "Substantial correlations for the reading and spelling subtest were obtained across all three groups, and moderately high correlations between the mathematics subtest scores were obtained across the groups" (WIAT Manual, 1993, p.56). This study reveals a strong relationship between the results of the WIAT-S and the WRAT-R.

The following study examined the WIAT-S and the WRAT3 to determine if the use of these achievement tests as interchangeable screeners for special education programs is appropriate in the school setting. These two screeners are presently both accepted, however the recency of the WIAT-S and the restandardization of the WRAT achievement tests lead to some concern regarding the accuracy and overall usefulness of these two measures.

# CHAPTER 3

# METHODOLOGY

## Subjects

The subjects were 30 males and 16 females (N=46) who were selected from various elementary schools in a moderate size city with strong military influence in middle Tennessee. These students had been referred to Psychological Services for an evaluation suspecting a possible learning disability or related disorder or for reassessment of a learning disability. The subjects were randomly selected from the referred student population. The selected sample was composed of 46 students ranging in age from 6-0 to 12-0, with a mean age of 9-4. The parents or legal guardians of all of the students have given initial consent prior to any testing.

## Instruments

The instruments that were used in this study are the Wide Range Achievement Test-3 (WRAT-3) and the Wechsler Individual Achievement Test-Screener (WIAT-S). The WRAT3 is a derivative of the WRAT which was originally published in 1936. The WRAT is a brief individually administered test. The WRAT measures skills in reading, arithmetic, and spelling. In 1984, the WRAT was revised adding additional arithmetic as well as some precomputation items. The WRAT-R's primary concern was mastery of the mechanics in reading, arithmetic, and spelling. The WRAT-R is divided into two sections according to age (Sattler, 1992).

In 1993, the WRAT3 was developed. The primary goal of the restandardization of the WRAT3 was to provide the same level of ease and reliability in usage as previous editions, while allowing for pre and post testing. There are two forms available; Tan and Blue. These are standardized to be used interchangeably. In this study the WRAT3(Tan) will be used to provide added reliability (therefore all further references to the WRAT3 will be referring to the WRAT3(Tan)).

The WRAT3 focuses on the basic skills critical to academic performance. The screener measures skills in reading, arithmetic, and spelling. The reading subtest measures the ability to recognize and name letter, decoding skills, and word reading. The arithmetic subtest measures such skills as counting, reading number symbols, and performing written computation. The spelling subtest measures the ability to copy marks resembling letters, write one's name, and write single words from dictation (Wilkinson, 1993).

The Wechsler Individual Achievement Test Screener (WIAT-S), the second screener examined in this study, was developed in hope to create a short form of the WIAT comprehensive battery that could be used to assess a child's progress. The WIAT-S consists of the first three subtests, of the eight subtests, in the larger comprehensive battery. "The WIAT and WIAT-S are the first achievement measures

directly linked to the Wechsler scales. Measurement experts have often stressed the importance of using linked data from achievement and ability tests in diagnosing and assessing learning disabilities" (WIAT Screener Manual, 1993, p.1).

The WIAT-S is used for assessing achievement of children who are in grades K through 12 and aged 5.0 to 19.11. "The screener refers to the idea of screening children simply in order to identify those who demonstrate relatively low-level, average, or high-level attainment in comparison the their peers" (WIAT Screener manual, 1993, p.1). The WIAT-S contains three subtests: reading, mathematics reasoning, and spelling.

> The Basic Reading contains a series of pictures and printed words for assessing decoding and word-reading ability. For early items the child is to point to responses: later items require the child to respond orally. The Mathematics Reasoning subtest is a series of problems for assessing the ability to reason mathematically. Many items include visual stimuli (e.g., graphs). The text for each item is orally presented and in most cases is also printed on the child's Stimulus Booklet page. The child is to respond in a variety of ways. The spelling subtest is a series of dictated letters, sounds, and words for measuring encoding and spelling ability. The child is to write responses. (WIAT Screener Manual, 1993, p.2)

Procedure

A referral packet was completed for each student by a Special education teacher and support team of each school. These packets consist of indirect and direct observations, hearing and vision screening, a social history, an assessment plan, the WIAT-S conducted by the special education teacher, and a consent form for testing signed by the parent or guardian (Appendix A). The School Psychology intern received permission from the director of special education (Appendix B) to use the data anonymously for the study. Once Psychological services received the packet, the School Psychology Intern proceeded by giving the Tan form of the WRAT3 to the students as part of their multifaceted diagnostic battery. The students were selected from the referred population or from those being evaluated for reestablishment of learning disabilities.

# CHAPTER 4

## RESULTS

The standard scores for the Wide Range Achievement Test 3 and Wechsler Individual Achievement Test-screener were analyzed. To determine the relationship between the two screeners a Pearson Correlation was computed and presented in Table 1.

All obtained correlations were significant ($p<.05$). Although the reading, arithmetic, and spelling comparisons were significant, the arithmetic correlation was lower. A dependent t-Test was computed to determine whether the means of the paired subtest differ, significant differences were found in reading.

Table 2 presents the mean and standard deviation differences among paired subtests. The individual subtest means and standard deviations are shown in Table 3. The WIAT-S and the WRAT3 were significant in their correlations among subtests. However, in using these standard scores and their individual intelligence test socres to determine eligibility for special education, differences were found. Presented in Table 4 is the number of subjects that would be eligible for special education according to Tennessee's definition of Learning Disability. As shown in each subject area: reading, arithmetic, and spelling, the number of subjects qualifying in each subject is greater with the WRAT3 than with the WIAT-S. The number doubles with the reading subtest. This is alarming even with a small sample,

the mislabelling of a child can affect their education along with their environment.

Table 1

Correlation Coefficients Between the Wide Range Achievement Test-3 and The Wechsler Individual Achievement Test-Screener.

| | WRAT Reading | WRAT Math | WRAT Spelling | WIAT Reading | WIAT Math | WIAT Spelling |
|---|---|---|---|---|---|---|
| WRAT Reading | 1.000 | | | | | |
| WRAT Math | 0.553 | 1.000 | | | | |
| WRAT Spelling | 0.840 | 0.560 | 1.000 | | | |
| WIAT Reading | 0.727 | 0.402 | 0.756 | 1.000 | | |
| WIAT Math | 0.478 | 0.528 | 0.493 | 0.373 | 1.000 | |
| WIAT Spelling | 0.684 | 0.307 | 0.761 | 0.813 | 0.405 | 1.000 |

Note. Those values in bold, represent values focused on in this paper.

Table 2

T-Test Results for Paired Subtests

| | WRAT Spelling vs. WIAT Spelling | WRAT Math vs. WIAT Math | WRAT Reading vs. WIAT Reading |
|---|---|---|---|
| Mean difference | 1.140 | 2.378 | 3.478 |
| SD difference | 7.289 | 11.292 | 7.491 |
| T difference | 1.025 | 1.413 | 3.149* |

*P = <.05

Table 3

Subtest Mean and Standard Deviation Scores

| | WRAT Spelling | WRAT Math | WRAT Reading | WIAT Spelling | WIAT Math | WIAT Reading |
|---|---|---|---|---|---|---|
| Mean | 89.09 | 94.13 | 85.09 | 89.58 | 91.24 | 88.57 |
| SD | 11.61 | 13.13 | 11.20 | 10.92 | 8.70 | 10.35 |

Table 4

Students Who Qualified for Special Education as Receiving Disabled Based on WIAT-S and WRAT-3 Scores

| | | Screener | |
|---|---|---|---|
| Subtest | WIAT-S | | WRAT3 |
| Reading | 7 | | 14 |
| Mathematics | 3 | | 8 |
| Spelling | 6 | | 9 |

# CHAPTER 5

## DISCUSSION

The correlation coefficients among paired subtest ranged form 0.528 to 0.761. The comparison between the WIAT-S and the WRAT3 Arithmetic subtest yield a lower correlation than reading and spelling subtest. One explanation to be considered is that the tests were developed with different criterion. The WIAT-S arithmetic measures the ability to reason mathematically. It requires the subject to process bits of information from charts, graphs, and word problems utilizing abstract thinking to reach a solution. The WRAT3, on the other hand, measures skills such as counting, reading, number symbols, and performing written computation which uses more concrete thinking processes.

Both of these abstract and concrete processes are crucial in diagnosing learning disabilities. However, consideration of the different skills tested needs to be taken into account when determining which measures are appropriate for diagnosis.

The spelling and reading subtests yielded correlation coefficients of 0.761 and 0.727, respectively indicating substantial content validity among the two measures. The spelling and reading subtests not only correlate highly, but also yield very similar means and standard deviations.

These results are similar to that of Jastak and Wilkinson in their study comparing the WIAT and the WRAT-R.

Substantial correlations between reading and spelling were obtained (0.84) and a moderately high correlation between the arithmetic subtest (.76) (WIAT Manual, pg.56).

One question needs to be further researched to determine whether the WIAT-S being directly normed with the WISC-III, was related to the observation of fewer children qualifying for special education with the WIAT-S. The WRAT3, on the other hand, was not directly liked to any other measures.

In conclusion, this study revealed significant correlations between the WIAT-S and the WRAT3 subtests, which directly suggests the two tests could be used interchangeably. However, caution must be exercised when interpreting these results. The need for caution is due to the differences observed when considering the number of students qualifying for a learning disability between the WIAT-S and the WRAT3 subtests. Further research should be conducted to determine more equivalent guidelines for qualifying students for special education. Statistics alone should not determine a child's education and future.

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# APPENDICES

## Appendix A

APRIL 21, 1994

TO: JAN HODGSON
SUPERVISOR OF SPECIAL EDUCATION
CLARKSVILLE/MONTGOMERY COUNTY SCHOOLS

FROM: M. CHRISTINE MOORE
INTERN SCHOOL PSYCHOLOGIST
SCHOOL OF GRADUATE STUDIES
AUSTIN PEAY STATE UNIVERSITY

IT IS MY DESIRE TO CONDUCT RESEARCH FOR MY THESIS USING DATA COLLECTED FROM CLARKSVILLE/MONTGOMERY COUNTY SCHOOLS' STUDENTS. THE TEST RESULTS FROM STUDENTS WHO ARE ADMINISTERED THE WRAT III AND THE WIAT-SCREENER WILL BE USED TO COMPARE THESE TWO TESTS FOR CONSTRUCT VALIDITY AND RELIABILITY AS A MEASUREMENT OF ACHIEVEMENT. I WOULD APPRECIATE YOUR PERMISSION AND CONSENT TO USE THIS INFORMATION.

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M. CHRISTINE MOORE HAS MY PERMISSION TO USE DATA OBTAINED THROUGH TESTING CLARKSVILLE-MONTGOMERY COUNTY SCHOOLS' STUDENTS FOR RESEARCH MATERIAL FOR HER THESIS.

April 21, 1994
DATE

Jan S. Hodgson
SIGNATURE

# CLARKSVILLE-MONTGOMERY COUNTY SCHOOL SYSTEM
## NOTICE AND CONSENT FOR INITIAL ASSESSMENT

STUDENT _____ GRADE _____

SCHOOL _____ TEACHER _____

PARENT/GUARDIAN _____

ADDRESS _____ DATE SENT _____ DATE RECEIVED _____

Your child has been referred for possible additional education services, based upon a review of current classroom performance, past educational records, and/or screening information. We are requesting permission to assess your child in order to provide additional information to help us plan a more effective educational program. Also, as the parent of a child who may be eligible for special education, please review the attached explanation sheet on the rights of exceptional children and parent responsibilities.

The reason(s) to request your permission to assess your child is (are):

( ) Child is working ( ) above grade level or ( ) below grade level in one or more basic skills.
( ) Child's behavior is inconsistent with that expected for children of his/her age.
( ) Child's rate of progress has ( ) increased ( ) decreased.
( ) Child's speech/language skills are inconsistent with those expected for children of his/her age.

The areas/procedures to be considered for your child's assessment are checked below. The extent of the assessment will depend upon the severity of the problem.

____ 1 Vision/Hearing Screening
____ 2 Classroom Observation
____ 3 Academic Achievement
____ 4 Intellectual Functioning
____ 5 Speech/Language Skills
____ 6 Gross/Fine Motor Skills
____ 7 Visual/Auditory Skills
____ 8 School and/or Home Behaviors
____ 9 Audiological Evaluation
____ 10 Functional Vision Assessment
____ 11 Personality Assessment
____ 12 Vocational Assessment
____ 13 Other _____
____ 14 Other _____

Please sign this form and return it to the school. When the assessment is complete, you will be contacted. The results will be shared with you, and a more appropriate educational program, if needed, will be planned for your child.

I have reviewed and understand the attached information concerning the rights of exceptional children and parent responsibilities. ____ Yes ____ No

Your prompt reply would be appreciated, as your permission is needed in order to asses your child. Please check one of the following:

____ I give permission for an individual assessment.
____ I do not give permission for an individual assessment.

_____ _____
Date Signature of Parent or Guardian

_____ _____
Phone Number Address

If you have any questions, you may contact one of the following:

Name of Person Department Telephone Number

_____

_____

White Copy: School Yellow Copy: Psychological Services Pink Copy: Parent