THE COMPARABILITY OF WISC-R AND WAIS-R PERFORMANCES AMONG EDUCABLE MENTALLY HANDICAPPED CHILDREN

A Thesis

by

JEAN MARIE BERRIER

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APPROVED BY:

Chairperson, Thesis Committee

Member, Thesis Committee

Member, Thesis Committee

Chairperson, Department of Psychology

Dean of the Graduate School

ABSTRACT

THE COMPARABILITY OF WISC-R AND WAIS-R PERFORMANCES AMONG EDUCABLE MENTALLY HANDICAPPED CHILDREN. (July 1984)

Jean Marie Berrier

B.A., Appalachian State University

M.A., C.A.S., Appalachian State University

Thesis Chairperson: James R. Deni

The present study was designed to assess the comparability of the Wechsler Intelligence Scale for Children-Revised (WISC-R) and the Wechsler Adult Intelligence Scale-Revised (WAIS-R) with a population of educable mentally handicapped students. WAIS-R and WISC-R scores were gathered from the records of 47 students who had at some time been identified as educable mentally handicapped by a qualified examiner. The group consisted of 28 males and 19 females, with 17 whites and 30 blacks. School psychologists from ten public school systems in North Carolina participated in the collection of data. These systems represented different geographical regions in North Carolina. Both urban and rural systems were included. To assess differences in WISC-R and WAIS-R subtest scores,

t-tests for correlated means were performed on each subtest pair. Significant differences were indicated for Similarities,Vocabulary, Block Design and Coding/Digit Symbol. In each case, WAIS-R scores were higher than WISC-R scores. Difference scores were also obtained for the Verbal, Performance, and Full Scale I.Q.'s, with mean differences of 8.38, 5.74, and 8.57 respectively. Again, WAIS-R scores were significantly higher ($p < .001$). The subject variables of race, sex, and size of community were also examined. Analysis of variance (ANOVA) was performed for each I.Q. score with regard to each of the three subject variables. The WISC-R and WAIS-R scores functioned as repeated measures. A significant ($p < .001$) main effect of the test was indicated, with the WAIS-R yielding higher scores in every case. However, no interaction between the subject variables (race, sex, and size of community) was indicated.

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INTRODUCTION

The task of choosing the most appropriate intellectual assessment instrument for children suspected of mental deficiency is frequently encountered by the school psychologist. Traditionally, the Wechsler Intelligence Scales have been the most widely used tests for children with mild mental handicaps.

The development of the Wechsler scales sought to provide a sequence of evaluation instruments which would make possible the assessment of intelligence from early childhood through adulthood. Before its revision in 1974, the WISC had an age range which extended from 6 years 0 months to 16 years 0 months. Following the revision the upper age limit was extended to 16 years 11 months. The WAIS(also revised in 1981) has an age range from 16 years 0 months to 74 years.

However, a current review of the literature casts some doubt as to whether the tests yield I.Q. scores which are equivalent to each other. A number of studies comparing the earlier editions of the WISC and the WAIS have indicated that the two tests yield discrepant scores, particularly at the lower levels of

intelligence (Hannon & Kicklighter, 1970; Simpson, 1968,1970;; K. Walker & Gross, 1970, K. Walker & C. Walker, 1972; Webb, 1963; Wesner 1973). In addition, studies comparing each test with its revised edition have also indicated that differences exist between the earlier and revised editions of both tests (Smith, 1983; Spitz, 1983; Swerdlik, 1977). Based on these results, it appears that more information is needed on the comparability of the revised scales (WISC-R and WAIS-R) in order to better assess the appropriate use of each.

Review of the Literature

Webb (1963) conducted a longitudinal comparison of the WISC and WAIS with a group of educably mentally retarded subjects. There were 12 girls and 8 boys in the group, all of whom were black. The WAIS was administered as part of a routine reevaluation for special education placement. Each subject had been administered the WISC approximately 2 years earlier. Significant differences were found for Full Scale ($p<.001$), Verbal ($p<.001$), and Performance ($p<.02$) I.Q.'s. In each case the WAIS scales yielded the higher scores, with mean differences of 10.7, 8.5, and 10.1 respectively.

Simpson (1968,1970) compared the WISC and WAIS in two studies in which he also examined ability level, race, and sex. Each study had a group of 120 subjects (ages 16-0 to 16-11), each of whom had scored below 90 on a screening instrument. All subtests of the WISC and WAIS were administered in a randomized order. Results indicated significantly higher WAIS I.Q.'s [Full Scale ($p<.001$); Verbal ($p<.001$); and Performance ($p<.01$)]. A greater disparity between scores was exhibited for Blacks than for Anglo-Americans or Mexican-Americans. Simpson noted that for 25% of the cases, the WISC score would indicate an EMR placement, while the WAIS score would indicate regular class placement.

Vocabulary, Similarities, and Block Design accounted for the greatest subtest disparity, but all subtest pairs exhibited higher WAIS scores except Coding vs. Digit Symbol. On this subtest pair, the WISC score surpassed the WAIS score. No significant sex differences were found.

Hannon and Kicklighter (1970) also compared the WISC and WAIS at different ability levels. In this study the WISC and WAIS were administered to 120 16-year-old students. Using prior school testing to approximate I.Q. levels, approximately 25% of the

subjects were in the below average range (I.Q. < 80), 25% were in the above average range (I.Q. > 120), and the remaining 50% were in the average range (I.Q. = 80-119). A counterbalanced order was employed for administration of the tests.

When all data were pooled the only significant difference found was between Performance I.Q. scores ($p < .05$). However, when the data were examined by ability, significant differences for all three scales (Full Scale, Verbal, and Performance) resulted. For the below average group, mean differences of 6.8, 7.8, and 3.3 respectively, were obtained. In each case the WAIS scores were significantly ($p < .01$) higher. This is consistent with Simpson's studies (1968, 1970). However, WISC scores were significantly higher for the average ($p < .05$) and above-average ($p < .01$) groups.

Results also indicated significance for order of administration. Smaller mean differences were obtained for the below average group when the WAIS was administered first. However, the opposite occurred in the average and above average groups, with smaller mean differences resulting when the WISC was the first test administered.

K. Walker and Gross (1970) investigated I.Q. stability among educable mentally retarded children by

comparing four test-retest situations: the Binet to Binet, Binet to WISC, WISC to WISC, and WISC to WAIS. The procedure for this study involved data gathered from records of children tested over a 5 year period who met the following criteria: 1) the child must have scored in the educable mentally retarded range when first tested, i.e. 55-75 I.Q., 2) the child must have been retested within 2 to 3 1/2 years following the original testing, 3) the child must have been at least 7 years of age at the time of original testing, 4) the child must have been tested by a qualified examiner on one or more of the three scales, and 5) the child's psychological report must have indicated no sensory or behavioral problems existed. A total of 173 children were included in the study.

In the first three comparisons, no significant differences were found between mean I.Q.'s. However, results from the comparison of the WISC to WAIS (mean retest interval = 2 years-11 months) resulted in a mean difference of +9.07 points for the Verbal I.Q., and +10.27 points for the Full Scale I.Q. These differences were significant at the $p < .01$ level. It should be noted that this group was much smaller than the other groups (N=15) which may have influenced the results.

In another study K. Walker and C. Walker (1972) analyzed school records of 50 mentally retarded adolescents. WAIS scores were recorded as well as WISC scores obtained 2 to 5 1/2 years earlier. The average retest interval was 3 years, 7 months. Mean differences in I.Q. scores were significant at $p < .001$ for all three scales (Full Scale, Verbal, and Performance). The WAIS I.Q.'s were higher in all three cases. The mean I.Q. differences for the Verbal, Performance, and Full Scale were 8.26, 8.56, and 9.70 respectively. Results also showed a sex difference with females subjects significantly lower (5 points) than male subjects in special education programs. No interaction between test interval and WISC vs. WAIS difference was reported. Analyses of subtests indicated higher WAIS scores for all subtests, with mean differences ranging from .05 to 2.32 points.

A study by Wesner (1973) also supports these findings. Wesner analyzed the records of 51 institutionalized mentally retarded adolescents. Each subject had to have had two prior WISC administrations before age 16 and a WAIS administration after age 16. The mean WISC-WISC test-retest interval was 19 months with a standard deviation of 10.2 months . The mean

WISC-WAIS test-retest interval was also 19 months with a standard deviation of 10.4 months.

Significant differences were found between WISC and WAIS Full Scale, Verbal Scale, and Performance Scale I.Q.'s. The WAIS yielded the higher scores in every case. The Performance Scale difference was significant at the $p<.05$ level, while both the Verbal and Full Scale differences reached the $p<.01$ level. No significant differences were found between the WISC-WISC administrations. Despite differences in mean I.Q. scores, high correlations were found to exist between the two tests. The correlations indicated that the WISC and WAIS ordered individuals in almost an identical manner, but differed by a constant number of I.Q. points. The author cautioned on using the two tests as if they were equivalent.

A few studies have compared the revised edition of the WISC (WISC-R) and the WAIS with mentally handicapped adolescents. Results of these studies are generally supportive of a difference in the two tests.

Craft and Kronenberger (1979) compared the WISC-R and the WAIS scores of a group of 30 16-year-old students placed in programs for the educably mentally handicapped. A counterbalanced test-retest design was used to distribute practice effects. All tests were

given by one examiner, with a mean interval between tests of 37 days. Mean I.Q.'s were compared for the total group as well as for the two subgroups that received alternate orders of testing (WISC-R first, and WAIS first).

Comparison of the subgroups indicated that while some learning did occur in the transition from one test to another, it was not enough to eliminate the fact that the two tests yielded significantly higher ($p < .001$) WAIS results in every case. Mean differences for the Verbal, Performance and Full Scale I.Q.'s were +12.6, +6.6, and +11.6 respectively. Suggestions for further research included comparing subtests and differing ages of transition.

Nagle and Lazarus (1979) used a counterbalanced test-retest design to compare the WISC-R and the WAIS score of 30 16-year-olds classified as educably mentally retarded by the public schools. The average interval between tests was 10 days. In addition to examining differences in Full Scale, Verbal, and Performance, I.Q.'s, they also compared subtest scores and patterns.

Results indicated that the WAIS yielded significantly higher Full Scale ($p < .001$), Verbal ($p < .001$), and Performance ($p < .005$)e I.Q.'s. Analyses

of the subtests comparing each WISC-R subtest with its WAIS counterpart indicated that, with the exception of Picture Completion, all WAIS subtest scaled scores were higher than the corresponding WISC-R subtest score. No significant differences were found for Picture Completion. Correlations were also performed between WISC-R and WAIS I.Q. scores and corresponding subtest scores. All correlations reached statistical significance, with correlations ranging from .38 to .87.

Subtest patterns were also analyzed by comparing the subtest rankings for each instrument. Mean subtest scores scores for the WAIS and WISC-R were ranked individually and a Spearman-rho correlational analysis performed. A significant correlation (r= .86; p<.01) was found between the rankings. Of the five highest ranked subtests, the WAIS included only one verbal subtest (Similarities), whereas none appeared on the WISC-R.

A study by Murray, Waites, Veldman, and Heatley (1973) examined : 1) the influence of ethnic differences on I.Q. scores, 2) trends in Verbal and Performance subtest score distributions, and 3) the effects of different measures (WISC and WAIS) on the assessment of intelligence. Subjects were 2498

delinquent boys of different ethnic groups. All subjects 15 years old or younger were administered the WISC, and, all subjects older than 15 years were administered the WAIS. A significant difference was found between the two groups with WAIS scores being higher for all groups. However, the difference was significantly exaggerated in the black group. Although this population was not classified as mentally retarded, the mean Full Scale I.Q. score for the WAIS was 90, and the mean Full Scale score for the WISC was 82. The conclusions from this study are limited by failure to control for subject differences between the two groups. The use of a delinquent population also decreases the generalizability of these results to other populations.

Several studies have also indicated disparity between the two Wechsler scales and their revised versions. Spitz (1983) investigated the intratest and intertest reliability and stability of Full Scale I.Q.'s of retarded adolescents using the WISC, WISC-R, and WAIS. The mean test-retest interval ranged from 1.74 to 3.54 years. The mean difference in Full Scale I.Q. from WISC to WISC was less than 1 point, indicating very stable scores; the mean difference from WAIS to WAIS was 1 point which was also nonsignificant.

On the WISC-R to WISC-R comparison a significant ($p<.05$) increase was noted with a mean difference in Full Scale I.Q.'s of around 3 points. Although significant, this increase is modest and with a correlation between administrations of $r=.84$ represents only slight instability of scores over time.

However, the mean WISC-R Full Scale I.Q. was significantly lower than the WISC I.Q. with a mean decrease of over 5 points. The authors identify differences in standardization groups as a probable source for this fluctuation. Both WISC and WISC-R Full Scale I.Q.'s were lower than WAIS I.Q.'s with mean differences of +9.4, and +14.3 respectively.

Swerdlik (1977) and Kaufman (1979) reviewed some of the major findings of a number of studies comparing the WISC and the WISC-R. Their reviews indicate the WISC-R consistently yields lower I.Q. scores with an average discrepancy in Full Scale I.Q.'s of around 6 points.

Smith (1983) compared the WAIS and WAIS-R using a counterbalanced design with a population of 70 college students. He found that a significant test x order interaction effect resulted in significantly higher WAIS-R scores when administered following the WAIS. However, when a subject received the WAIS-R first,

scores were significantly lower than on the WAIS. More practice items and clearer instructions on the WAIS were discussed as possible variables in producing such an effect.

Lippold and Claiborn (1983) conducted a study comparing the WAIS and WAIS-R using a procedure which eliminated repetition of identical items. Subjects were 30 veterans referred for neuropsychological re-evaluation. Results compared I.Q. scores and all subtest scores. Significant differences ($p < .001$) were found with WAIS scores being higher than WAIS-R scores.

Wechsler (1981) reports a study in the WAIS-R manual comparing the WAIS and WAIS-R with 72 35 to 44 year-olds. A counterbalanced design over a 3 to 6 week interval showed a mean decrease of 8 points in Full Scale I.Q.'s from the WAIS to the WAIS-R.

Whereas the previous studies indicated significant differences in obtained Full Scale I.Q. scores between the WISC and WAIS, a few studies comparing the two tests do not support such a difference.

Ross and Morledge (1967) compared the WISC and the WAIS scores for a group of 15 male and 15 female subjects. All subjects were tested with the WISC and 4 weeks later tested with the WAIS. At some time during the 4 week interval, each subject passed his or her

16th birthday. The mean difference between the Full Scale I.Q.'s was +2.4 with a range from -11 to +13 points. The mean difference between the Verbal I.Q.'s was +3.5 points, with a range from -13 to +21. The difference between means of Performance I.Q.'s was +1.0. None of the differences between mean I.Q.'s for any of the three scales was significant.

Barclay, Friedman, and Fidel (1969) compared the WISC and WAIS performances of two randomly selected groups of institutionalized retardates. The WAIS was administered to 113 subjects (73 males, 40 females), ranging in age from 16 to 35 (mean = 20.39) with I.Q. scores ranging from 40-84 (mean = 64.48). The WISC was administered to 63 subjects (47 males, 16 females), ranging in age from 9 to 16 (mean = 13.7). Their I.Q. scores ranged from 40 to 84 (mean = 61.11). No significant discrepancies in I.Q. scores were found between the two groups. However, some differences in score patterns were exhibited.

Statement of the Problem

Currently no studies comparing the WISC-R and WAIS-R with educable mentally handicapped children have been reported in the literature. However, research comparing the WAIS and the WISC, as well as the WAIS and the WISC-R, indicate significant differences

between the two scales with the WAIS consistently yielding higher scores for adolescents of below average ability. A larger disparity of scores has also been shown to exist for black children who are mentally handicapped. No significant sex differences were reported for the majority of the studies. Research also indicates discrepancies between each test and its revised edition. Thus, no accurate conclusions regarding the comparability of the WISC-R and WAIS-R can be drawn based on this earlier data.

The primary purpose of this study was to assess the comparability of the WISC-R and WAIS-R with educable mentally handicapped students. Mean differences in Verbal Scale, Performance Scale, and Full Scale I.Q. scores were examined, as were mean differences between subtest scores. The effects of race, sex, and size of community were also examined.

The following hypotheses were addressed in this study:

Hypothesis 1: The WAIS-R will yield significantly higher I.Q. scores than the WISC-R for Verbal Scale, Performance Scale and Full Scale I.Q.'s.

Hypothesis 2: The WAIS-R will yield significantly higher subtest scores than the WISC-R on a majority of the subtests.

Hypothesis 3: Differences between the two tests will be significantly larger for Blacks.

Hypothesis 4: No effects relating to sex or size of community is expected.

METHOD

Subjects

The subjects were 47 public school students who had been identified as Educable Mentally Retarded (EMH) by a qualified examiner. Records from ten school systems in North Carolina were used. All subjects had received at least one WISC-R administration and at least one WAIS-R administration by a qualified examiner. Twenty-eight of the subjects were male and 19 were female. Grouping subjects by race, 30 were black and 17 were white. The mean age at the time of administration, was 13 years 7 months for the WISC-R and 17 years 11 months for the WAIS-R. The breakdown of subjects by race, sex and size of community is shown in Table 1.

Materials

Data for this study were obtained by reviewing confidential files of children who had at some time been classifed as Educable Mentally Handicapped by a qualified examiner. School psychologists who were participating in this study were mailed data collection sheets to be used in gathering the necessary information from student files (see Appendix A). The

Table 1

Number of Subjects as a Function of Race, Sex, and Size of Community

	Black	White		
Race	n=30	n=17		
	Males	Females		
Sex	n=28	n=19		
	A	B	C	D
Size of Community	n=5	n=13	n=27	n=2

Note. A = population less than 1,000; B = population 1,000 to 10,000; C = population 10,000 to 100,000; D= population 100,000 to 500,000.

WISC-R and WAIS-R had been previously administered by the school psychologist or other qualified examiner.

Procedure

Initially, school psychologists from fifteen systems representing both urban and rural systems in North Carolina were contacted by telephone regarding their willingness to participate in this study. Systems were chosen on the basis of expressed interest in the study and geographical area (mountain, piedmont, and coastal). Following this initial contact, a letter outlining the procedure and a data sheet to be used for gathering information from student records was mailed. Since most systems have been using the WAIS-R only since 1982, psychologists were asked to fill out data sheets on all students who met the criteria. Upon completing the data sheets, each participant was instructed to return them by mail to the examiner by May 30, 1984. Of the 15 systems who agreed to participate, five failed to return the data sheets by the necessary deadline.

Criteria for selection of subjects included: (1) subjects had to have been administered the WISC-R at least once, (2) subjects had to have been administered the WAIS-R at least once, and (3) subjects had to have been classified as EMH at some time by a qualified

examiner. Originally data sheets for 56 subjects were received. However, nine of these could not be used due to insufficient data and/or failure to meet the established criteria.

Design and Data Analysis

A longitudinal, within-subjects design was employed to assess differences between WISC-R and WAIS-R I.Q.'s with EMH students. To further assess the data, the subject variables of race, sex, and size of community were analyzed. Separate analyses were performed for each variable in relation to the three subscales (Verbal, Performance, and Full Scale). This was necessary due to unequal cells produced by the relatively small sample size. In all, nine ANOVA's were performed. A 2 x 2 (subject variable x test instrument) ANOVA with repeated measures on the second factor was performed for each of the grouping variables of race and sex. A 4 x 2 (community size x test instrument) ANOVA with repeated measures on the second factor was performed, grouping by community size. The test instrument served as the repeated factor in each case, with the WISC-R and WAIS-R representing the two levels. Differences in subtest scores and I.Q. scores were also analyzed using t-tests for correlated means.

The data obtained in this study was analyzed through programs P2V (ANOVA including repeated measures) of MBDT (1981) Statistical Analysis Package, and t-TEST of the Statistical Package for the Social Sciences. These programs were run through the Univac 90-80 system at the Appalachian State University Computer Center.

RESULTS

Difference scores were obtained, and one-tailed t-tests for correlated means performed for Verbal I.Q., Performance I.Q. and Full Scale I.Q. scores. Table 2 shows means, standard deviations, and t-values for each subscale. The WAIS-R yielded significantly higher scores for all three scales Verbal [$t(46) = -8.21$; $p < .001$], Performance [$t(46) = -4.78$; $p < .001$], and Full Scale [$t(46) = -7.89$; $p < .001$]. The mean differences obtained were 8.38, 5.74. and 8.57, respectively.

To examine differences in subtest scores on the WISC-R and WAIS-R, one-tailed t-tests for correlated means were performed on all ten subtest pairs. Table 3 shows means, standard deviations, and t-values for subtest scaled scores. Significant differences were noted on Similarities [$t(43) = -3.05$; $p < .01$)], Vocabulary [$t(43) = -1.87$; p .05], Block Design [$t(43) = -3.64$; $p < .001$] and Coding/Digit Symbol [$t(43) = -4.14$; $p < .001$). In each case The WAIS-R yielded the higher score.

The subject variables of race, sex and size of community were employed in order to further analyze these data. Separate one-way ANOVA's with repeated

Table 2

Means, Standard Deviations, and t-values for I.Q. Subscales

Subtest	WISC-R		WAIS-R		Diff.	t
	Mean	SD	Mean	SD		
VIQ	65.40	8.80	73.80	5.04	-8.38	-8.21**
PIQ	68.06	12.05	73.81	8.27	-5.74	-4.78**
FSIQ	64.15	10.38	72.72	5.45	-8.57	-7.89**

**$p < .001$

Table 3

Means, Standard Deviations, and t-values for Subtest Scaled Scores

Subtest	WISC-R		WAIS-R		Diff.	t
	Mean	SD	Mean	SD		
Info.	4.29	2.03	4.13	1.21	.159	.49
Sim.	4.27	2.02	5.23	1.76	-.955	-3.05**
Arith.	4.36	1.87	4.70	1.50	-.341	-1.30
Vocab.	4.04	2.17	4.55	1.07	-.50	-1.87*
Comp.	4.80	2.08	4.61	1.40	.182	.64
Pic. Comp.	5.27	2.72	5.59	1.92	-.318	-.94
Pic. Arr.	5.77	3.09	6.23	2.04	-.455	-1.10
B. Design	4.27	2.61	5.43	1.78	-1.16	-3.64***
O. Assem.	5.18	2.73	5.84	2.55	-.659	-1.59
Cod/D.S.	5.02	2.43	6.20	2.32	-1.18	-4.14***

*p<.05. **p<.01. ***p<.001.

measures were performed pairing each subscale (Verbal, Performance, and Full Scale), with each subject variable (race, sex, community size). Nine separate ANOVA's were computed.

Tables 4, 5, and 6 (Appendix B) summarize results of ANOVA'S pairing WISC-R and WAIS-R Verbal I.Q's with each subject variable (race, sex, and community size). Results of ANOVA's pairing WISC-R and WAIS-R Performance I.Q.'s with each subject variable are presented in Tables 7, 8, and 9 (Appendix C). A summary of results of ANOVA's pairing WISC-R and WAIS-R Full Scale I.Q.'s with each subject variable appear in Tables 10, 11, and 12 (Appendix D).

A significant main effect of test instrument (WISC-R or WAIS-R) was indicated for all three scales. The WAIS-R was significantly higher ($p < .001$) in every case. No main effects or interaction effects due to any of the subject variables of race, sex or community size were exhibited.

DISCUSSION

The present findings clearly support the hypothesis that the WAIS-R will yield consistently higher scores than the WISC-R for Verbal, Performance, and Full Scale I.Q.'s with EMH students. The results of this study are supportive of previous research done with the original editions of the WISC and WAIS (Simpson, 1968,1972; Spitz, 1983; K. Walker & C. Walker 1972;, Webb, 1963)

The hypothesis that the WAIS-R would yield higher subtest scores was only partially supported. No significant differences were found for six of the ten subtest pairs. However, the WAIS-R yielded significantly higher scores than the WISC-R on the Similarities, Vocabulary, Block Design and Coding/Digit Symbol subtests. Some possible explanations for these differences may be: 1) differences in the test items themselves, 2) maturational effects -- particularly involving motor co-ordination and increased vocabulary, and/or 3) differences in the norm groups of the two tests. There do not appear to be significant differences in the administration of these subtest pairs, with the possible exceptions of Vocabulary. The

WAIS-R Vocabulary subtest includes a word list which provides a visual prompt which is not provided in the WISC-R. However, it does not seem likely to have a major impact on scores.

The hypothesis that the difference between the two tests would be significantly larger for blacks was not supported. Results of this study indicated no effects of race. This may be attributable to increased economic and educational opportunities for blacks, decreasing cultural gaps to some degree. The relatively small sample size (30 blacks, 17 whites) may also have affected these findings. As anticipated, no effects relating to sex or community size were indicated.

Generalizability of this study was weakened somewhat by several factors. Sample size was relatively small (n = 47). This limited conclusions regarding group differences because of the very small numbers in some groups. Also, groups were somewhat disproportionate, especially regarding size of community.

Because this study was done in a longitudinal fashion, and consisted of gathering pre-existing data, it was impossible to control for confounding variables. In all cases, as is the usual procedure in the school

system, the WISC-R was the first test administered. Therefore, it was impossible to control for practice effects. Test-retest interval ($\bar{x}$ = 3 years, 11 months) and age at the time of administration are other factors which may have had a confounding effect on this study. Differences between examiners, regression toward the mean, and differences in test environments are other factors which may have affected these results.

A study using an experimental design in which controls for factors such as time interval between tests, age at the time of administration, order of administration, effect of examiner and test environment were employed would provide results which could be interpreted with more clarity. However, the results of this study, with its obvious limitations, indicate that the difference between the WISC-R and WAIS-R is of enough significance to warrant further investigation. A mean Full Scale difference of over 8 I.Q. points could have serious impact regarding classification and eligibility for exceptional children's programs. Further research is necessary before the WISC-R and WAIS-R are accepted as equivalent measures within an EMH population. If the two tests are not equivalent, as this study suggests, further research to determine which is the more appropriate instrument is necessary.

These findings suggest that school psychologists and others working with EMH populations should exercise caution when interpreting WAIS-R scores. Other supporting data should be employed to better determine if the WAIS-R overpredicts abilities when making placement and curriculum decisions.

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APPENDIX A

WISC-R/WAIS-R Comparison Data Sheet

WISC-R/WAIS-R Comparison Data Sheet

1. Your Name_____ phone_____

   School System_____

2. Child's date of birth_____

3. WISC-R Administration (most recent)

   Date of Administration_____ grade_____

WISC-R Scores(scaled scores)

Information	_____	Pic. Completion	_____
Similarities	_____	Pic. Arrangement	_____
Arithmetic	_____	Block Design	_____
Vocabulary	_____	Object Assembly	_____
Comprehension	_____	Coding	_____

I.Q. Scores	Sum of Scaled Scores	I.Q. Scores
Verbal	_____	_____
Performance	_____	_____
Full Scale	_____	_____

4. Previous WISC-R Information (if avaialable)

Date of Administration_____ grade_____

WISC-R Scores(scaled scores)

Information	_____	Pic. Completion	_____
Similarities	_____	Pic. Arrangement	_____
Arithmetic	_____	Block Design	_____
Vocabulary	_____	Object Assembly	_____
Comprehension	_____	Coding	_____

I.Q. Scores	Sum of Scaled Scores	I.Q. Scores
Verbal	_____	_____
Performance	_____	_____
Full Scale	_____	_____

5. WAIS-R Information

Date of Administration_____ grade_____

Subtests (scaled scores)

Information	_____	Pic. Completion	_____
Similarities	_____	Pic. Arrangement	_____
Arithmetic	_____	Block Design	_____
Vocabulary	_____	Object Assembly	_____
Comprehension	_____	Coding	_____

I.Q. Scores	Sum of Scaled Scores	I.Q. Scores
Verbal	_____	_____
Performance	_____	_____
Full Scale	_____	_____

Child Information

1. Date of Birth_____ 2. Sex: Male__Female ___

3. Grade in school (if still attending)_____

4. Ethnicity: Black___ White___ Hispanic___

Oriental___ Other___

5. Size of child's community of residence: rural/town w/pop. less than 1,000__,town (pop. 1,000 to 10,000) __,city (pop. 10,000 to 100,000)___,city (pop. 100,000 to 500,000) ___

APPENDIX B

Comparison of WISC-R and WAIS-R Verbal I.Q.'s:

Interaction of Race, Sex, and Size of Community

Table 4

Comparison of WISC-R and WAIS-R Verbal I.Q.'s:

Interaction of Race

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Between Groups					
R(Race)	21.79	1	21.79	.27	.603
Error	3579.85	45	79.55		
Repeated Measures					
V(WISC-R-WAIS-R)	1449.5	1	1449.5	58.5	.000*
VR(WISC-R-WAIS-R x Race)	12.56	1	12.56	.51	.48
Error	1091.12	45	24.25		

*$p < .001$

Table 5

Comparison of WISC-R and WAIS-R Verbal I.Q.'s: Interaction of Sex

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Between Groups					
S(Sex)	88.02	1	88.02	1.13	.294
Error	3513.62	45	78.08		
Repeated Measures					
V(WISC-R-WAIS-R)	1684.4	1	1684.4	69.47	.000*
VS(WISC-R-WAIS-R x Sex)	36.44	1	36.44	1.5	.227
Error	1091.12	45	24.25		

*p<.001

Table 6

Comparison of WISC-R and WAIS-R Verbal I.Q.'s:

Interaction of Community Size

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F.
Between Groups					
C(Community)	338.18	3	112.73	1.49	.232
Error	3263.46	43	75.89		
Repeated Measures					
V(WISC-R-WAIS-R)	562.85	1	562.85	23.09	.000*
VC(WISC-R-WAIS-R x Community Size)	79.44	3	26.48	1.09	.365
Error	1048.11	43	24.37		

*$p < .001$

APPENDIX C

Comparison of WISC-R and WAIS-R Performance I.Q.'s:

Interaction of Race, Sex, and Size of Community

Table 7

Comparison of WISC-R and WAIS-R Performance I.Q.'s: Interaction of Race

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Between Groups					
R(Race)	2.37	1	2.37	.01	.91
Error	8252.24	45	183.38		
Repeated Measures					
P(WISC-R-WAIS-R)	652.05	1	652.05	19.01	.000*
PR(WISC-R-WAIS-R x Race)	19.67	1	19.67	.57	.453
Error	1543.80	45	34.31		

*p<.001

Table 8

Comparison of WISC-R and WAIS-R Performance I.Q.'s: Interaction of Sex

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Between Groups					
S(Sex)	420.56	1	420.56	2.42	.127
Error	7834.06	45	174.09		
Repeated Measures					
P(WISC-R-WAIS-R)	821.12	1	821.12	24.38	.000*
PS(WISC-R-WAIS-R x Sex)	47.67	1	19.67	1.42	.240
Error	1515.80	45	33.68		

*$p < .001$

Table 9

Comparison of WISC-R and WAIS-R Performance I.Q.'s: Interaction of Community Size

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Between Groups					
C(Community)	750.29	3	250.09	1.43	.246
Error	7504.33	43	174.52		
Repeated Measures					
P(WISC-R-WAIS-R)	464.51	1	464.51	13.26	.000*
PC(WISC-R-WAIS-R x Community)	57.32	3	19.12	.55	.653
Error	1506.15	43	35.03		

*p<.001

APPENDIX D

Comparison of WISC-R and WAIS-R Full Scale I.Q.'s:

Interaction of Race, Sex, and Size of Community

Table 10

Comparison of WISC-R and WAIS-R Full Scale I.Q.'s: Interaction of Race

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Between Groups					
R(Race)	7.99	1	7.99	.07	.79
Error	5042.62	45	112.06		
Repeated Measures					
F(WISC-R-WAIS-R)	1512.42	1	1512.42	53.9	.000*
FR(WISC-R-WAIS-R x Race)	14.54	1	14.54	.52	.475
Error	1262.20	45	28.05		

*$p < .001$

Table 11

Comparison of WISC-R and WAIS-R Full Scale I.Q.'s: Interaction of Sex

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Between Groups					
S(Sex)	272.72	1	272.72	2.57	.116
Error	4777.90	45	106.18		
Repeated Measures					
F(WISC-R-WAIS-R)	1788.41	1	1788.41	66.18	.000*
FS(WISC-R-WAIS-R x Sex)	60.75	1	60.75	2.25	.141
Error	1215.99	45	27.02		

*p<.001

Table 12

Comparison of WISC-R and WAIS-R Full Scale I.Q.'s: Interaction of Community Size

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Between Groups					
C(Community)	416.00	3	138.67	1.29	.246
Error	4634.62	43	107.78		
Repeated Measures					
F(WISC-R-WAIS-R)	636.60	1	636.60	21.82	.000*
FC(WISC-R-WAIS-R x Community)	22.35	3	7.45	.26	.857
Error	1254.40	43	29.17		

*p<.001

VITA

Jean Marie Berrier was born in Lorain, Ohio on November 4, 1959. She lived in Raleigh, North Carolina before moving to Charlotte, North Carolina in 1966. In 1978 she graduated as an honor student from North Mecklenburg High School. She received an Honors Scholarship to Appalachian State University and graduated in May of 1982 with a B.A. in Psychology and a minor in Special Education.

Ms. Berrier entered the School Psychology program at Appalachian State University in the fall of 1982. During her graduate studies, she received an Alumni Scholarship and graduate assistantships in the Department of Psychology and the Department of Reading Education.

She completed an internship in the Alleghany County Public Schools during the spring of 1984, and was a practicum student with Western Correctional Center in Morganton, North Carolina.

Ms. Berrier is a member of Alpha Chi honor society, Phi Kappa Phi honor society, Psi Chi psychology honor society, and the North Carolina School

Psychologist Association. Beginning in August 1984, she will be employed with Rowan County Public Schools.

Ms. Berrier is the daughter of Mr. and Mrs. Richard N. Berrier. She currently resides with her parents at 5024 Hoover Drive, Charlotte, North Carolina.