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A Comparison Study: The KABC-II and WJ-IV COG with students referred for academic problems

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A COMPARISON STUDY: THE KABC-II AND THE WJ-IV COG WITH STUDENTS REFERRED FOR ACADEMIC PROBLEMS

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ABSTRACT

This study was conducted based on the limited availability of research comparing the KABC-II and WJ-IV COG. The study included 15 Caucasian students and 15 African American students between the ages of 8 years, 0 months to 13 years 7 months who attend a suburban school district in Ohio and were referred due to academic concerns. The sample consisted of 11 females and 19 males with an average age of 11 years, 5 months. Results found the correlation between the GIA and the MPI was $r = .83$, n = 30, $p < .05$ and the relationship between the GIA and the FCI to be $r = .86$, n = 30, $p<.05$. Results of a t-test found the scores for the GIA and FCI to be significantly different $t(_{29})=3.57$, $p < .001$. Correspondingly, t-test results for the GIA and MPI was $t(_{29}) = 3.07$, $p<.05$.

CHAPTER ONE

LITERATURE REVIEW

Different intelligence tests measure cognitive constructs in different ways. Intelligence tests are comprised of several individual tests, sometimes called subtests, which create an overall estimate of an individual's overall general mental ability. General mental ability, defined by Spearman in 1927, is often referred to as psychometric *g*. The batteries of tests that comprise each intelligence test often differ in content (e.g. spatial and verbal) and in the processes required (e.g. memory and reasoning) (Floyd, et al. 2013). Due to the differences across intelligence tests in the content and processes required, psychometric *g* will always be influenced by the type and variety of tests from which it is obtained (Floyd, et al. 2013). It is important to determine the amount in which intelligence tests, used by practitioners, agree in measuring psychometric *g*. Therefore, there is the need to compare intelligence tests so practitioners are knowledgeable about the likelihood of getting a similar score if using different instruments. The current study will address this need by comparing two popular intelligence tests currently on the market.

Despite criticism, psychoeducational testing is still highly utilized in the eligibility determination for children to receive special education services for specific learning disabilities and other identified disabilities. Also, as mentioned previously, intelligence testing is required in determining eligibility for an intellectual disability. Therefore, intelligence testing continues to be a widely used tool within psychoeducational assessment of children with learning problems in a majority of school systems across the United States. The main role of intelligence testing in psychoeducational assessment today is to provide insight about a child's cognitive abilities and to further serve the purpose of predicting students' achievement in the classroom. Also, when variations within students' cognitive profiles are analyzed, the variations can shed light upon the

student's specific strengths and weaknesses which can aid in creating successful, more effective, classroom interventions tailored specifically for how a student learns best by building upon their strengths (Wodrich, Spencer, & Daley, 2006).

It is crucial to choose an appropriate testing instrument in order to gain the best mental representation of the child being assessed. Important factors to consider when selecting the appropriate assessment are the age of the child, known disabilities, English language proficiency, and the specific information the examiner needs to answer the referral question (Reynolds, Keith, Fine, Fisher, & Low, 2007). With many psychological tests from which to choose, it is important to make a well informed decision about which test may be best suited for the population of students an examiner will be working with in their schools. The current study will be looking at individual performances for students referred for a multi-factored evaluation using the Kaufman Assessment Battery for Children, Second Edition, in comparison to the newly released Woodcock-Johnson Test of Cognitive Abilities, Fourth Edition in school age children.

The Kaufman Assessment Battery for Children, Second Edition (KABC-II)

The KABC-II is a popular testing instrument used by practitioners in the psychoeducational assessment of students struggling with academic problems. One of the many attractions to the test is the flexible design to work within two different theories of intelligence. The design of the KABC-II is based off of two popular models of intelligence, Cattell-Horn-Carroll (CHC) theory and Luria's neuropsychological theory of mental processing (Hunt, 2007; Kaufman & Kaufman, 2004;). Due to the design of the test, it allows examiners to select the model of their preference based upon the referral question and needs of the child.

The Luria model utilizes the Learning, Planning, Sequential, and Simultaneous scales to compute the overall general intelligence score known as the Mental Processing Index (MPI)

(Kaufman & Kaufman, 2004). The primary difference of the Luria model is that it is based off of problem-solving processes not influenced by acquired knowledge (Kaufman & Kaufman, 2004). This is one of the primary attractions of this assessment because measuring acquired knowledge often can interfere with the results of students who are bilingual, experiencing a language disorder, hearing deficient, autistic, or have had limited access to mainstream culture (Hunt, 2007; Kaufman & Kaufman, 2004;). The KABC-II also has a Nonverbal battery, which may be beneficial to use with students that have severe deficits in verbal abilities.

On the KABC-II, the CHC model utilizes the four Luria Scales, albeit interpreted differently, and also a crystallized ability scale (Kaufman & Kaufman, 2004). This battery was designed to be utilized with children that have had access to mainstream culture and language background. The scales are interpreted as Fluid Reasoning (Planning), Long- Term Storage and Retrieval (Learning), Visual Processing (Simultaneous Processing), Short-Term Memory (Sequential Processing), and Knowledge to compute the general ability score that is known as the Fluid-Crystallized Index (FCI) (Hunt, 2007; Kaufman & Kaufman, 2004).

The Luria and CHC batteries are also further divided by age. There is a separate battery designed for ages 3 through 6 and a battery designed for ages 7 through 18. For the 3 through 6 battery, the Planning (Fluid Reasoning) Index is not included in the Luria or CHC model. The authors of the test designed it this way as children before the age of 7 are more concrete in their reasoning abilities therefore reasoning tests are not entirely developmentally appropriate in the 3 through 6 age group (Kaufman & Kaufman, 2004).

Correlation studies were conducted during the norming process with the Wechsler Intelligence Scales for Children-III, KABC, Kaufman Brief Intelligence Test, Peabody Individual Achievement Test-Revised, WJ-III COG, WJ-III Tests of Achievement, and Wechsler Individual

Achievement Test II (Kaufman & Kaufman, 2004). The KABC-II demonstrated good reliability for both age groups, ages 3 through 6 and ages 7 through 18 on the FCI and MPI scores. The median reliability for the group age 3 through 6 was .85 and the age group of 7 through 18 had a median reliability of .87 (Kaufman & Kaufman, 2004). The authors found that retest stability increased with age.

The Woodcock-Johnson Tests of Cognitive Abilities, Fourth Edition (WJ-IV COG)

The WJ-IV COG contains 18 tests for measuring general intellectual ability, academic domain-specific aptitudes, and broad and narrow cognitive abilities (McGrew, Laforte, & Schrank, 2014). These tests combine to form a variety of clusters. The definitions of the abilities measured by the WJ-IV COG are based primarily off of the Cattell-Horn-Carroll theory. According to the authors of the test, the individual tests are the basic administration components of the WJ-IV COG but it is the clusters of tests that provides the primary basis for interpretation (Mather & Wendling, 2014). The WJ-IV COG provides four different types of ability scores to facilitate a wide variety of predictive purposes: General Intellectual Ability, the G*f*-G*c* Composite, Brief Intellectual Ability (BIA), and the Scholastic Aptitudes (Mather & Wendling, 2014).

The G*f*-G*c* Composite is designed to be an estimate of intellectual ability based on the two highest-order factors: comprehension knowledge (G*c*) and fluid reasoning (G*f*) (Mather & Wendling, 2014). The authors designed this composite to provide important diagnostic information. The test's authors propose this composite is a good resource for identifying individuals for gifted programs and can be used as an estimate of potential in an ability-achievement discrepancy procedure to determine the existence of a learning disability by reducing deterring influences (e.g., slow processing speed, poor auditory processing) in referred children (Mather & Wendling, 2014).

The General Intellectual Ability (GIA) will be the score examined from this instrument for this study in comparison to the KABC-II. The GIA is the overall intelligence score computed by the WJ-IV COG. According to the test's authors, the GIA should be the best single score predictor of school achievement or other life outcomes which have a significant relationship to cognitive ability. For the WJ-IV COG, an individual's scores on the core tests 1-7 compute the GIA score. The subtests that compute the GIA are: Oral Vocabulary, Number Series, Verbal Attention, Letter-Pattern Matching, Phonological Processing, Story Recall, and Visualization. According to the test authors, each CHC ability is differentially weighted to provide the best overall estimate of global intelligence (Mather & Wendling, 2014). Abilities with stronger correlations to *g*, such as fluid reasoning (G*f*) and comprehension knowledge (G*c*), contribute more to the GIA score. Other abilities, such as visual processing (G*v*), contribute less to the overall GIA score (Mather & Wendling, 2014; McGrew, et al., 2014). According to the test's authors, the norm sample had a GIA score reliability of .96 in subjects from the 5 to 19 age range and a .97 in the adult age range.

The added tests that were not included in the previous version that comprise the standard battery are Number Series and Phonological Processing tests. Number Series evaluates an individual's ability to figure out a number missing from a mathematical sequence. Number Series looks specifically at an individual's Fluid Reasoning skills in the ability to grasp sequential information to determine a pattern, along with Quantitative Knowledge which is needed to arrive at the correct numerical answer. The Story Recall test was pulled from the Achievement battery and placed into standard WJ-IV COG battery. The General Information test was moved from the extended battery to the standard battery. The Phonological Processing test is comprised of three parts: Word Access, Association, and Substitution. These three parts examine an individual's ability to access specific words within a timed setting and perform phoneme segmentation and

substitution. The authors created this cluster to specifically be compared to an individual's performance on reading subtests in the WJ-IV Tests of Achievement to better diagnose specific learning disabilities related to reading (Mather & Wendling, 2014).

Previous Research

There is very little data available regarding the WJ-IV Tests of Cognitive Abilities, aside from the normative study and clinical studies conducted by the authors of the test for instrument reliability and validity purposes. Furthermore, there is merely minimal research conducted comparing the previous version (WJ-III COG) to the KABC-II, particularly with the kindergarten through twelfth grade school age population.

During the norming process, the test authors compared the new WJ-IV COG with the WISC-IV, Wechsler Adult Intelligence Scales-IV, Stanford-Binet 5, and KABC-II, They found a .86 correlation with the WISC-IV FSIQ and a .84 correlation with the WAIS-IV FSIQ. When the SB-5 FSIQ was compared with the WJ-IV, they found a correlation of .80. When the authors compared the WJ-IV COG with the KABC-II FCI and MPI, they found the correlations to be .72 with MPI and .77 with the FCI (McGrew, et al., 2014).

Due to the limited number of available studies comparing the WJ and the KABC, studies involving preschoolers will be reviewed even though this age group was not included in the current study. A factor analysis study conducted by Hunt in 2007 compared the WJ-III COG and the KABC-II in preschool age children. The study yielded results finding the KABC-II was better suited to administer to preschool age children rather than the WJ-III COG. The reason for this finding is that several subtests within the WJ-III COG, such as Numbers Reversed, Analysis Synthesis, and Concept Formation, were above the appropriate level for preschool students (Hunt, 2007).

Another joint confirmatory factor analysis study comparing the WJ-III COG and the Stanford-Binet, Fifth Edition (SB-5) in preschool children was conducted by Chang, Paulson, Finch, McIntosh, and Rothlisberg in 2013. The study found that Fluid Reasoning (G*f*) does not emerge until after the age of 5, and is not a separate construct at the preschool level, confirming previous similar findings. The study also revealed that both instruments often loaded unexpectedly on the G*c* factor. This conclusion was made due to significantly higher correlations of the individual subtests that were not designed to be part of the G*c* factor with the G*c* subtests. As a conclusion, the authors suggest that while there are separate multiple abilities (e.g., G*c*, G*v*, and G*sm*) that can be measured in preschool children, the constructs are likely to be represented somewhat differently than adults due to influences in the development of cognitive ability in young children (Chang et al., 2013). Also, the authors noted that practitioners should keep in mind that, while many of the subtests may seem unrelated to crystallized ability, preschoolers' verbal and linguistic skills can have a significant impact on individual test performance. This demonstrates that these batteries individually as a whole did not demonstrate good results for the purposes of cross battery assessment (Chang et al., 2013).

In 2011, a KABC-II study conducted by Dale, McIntosh, and Rothlisberg, looked at the profile analysis of African American preschoolers in comparison to Caucasian preschoolers. The study found that interpretation at the composite level for both African American and Caucasian preschool children is accurate. The authors found that the students performed similarly among the constructs in the area of level and pattern of scores (Dale et al., 2011). The results of the study also determined that the largest mean difference in ability between both groups of children was in Verbal Comprehension. The authors attribute this pattern in part to Lexical Knowledge (measured by Expressive Vocabulary). Overall, the authors emphasize that practitioners should feel confident

making recommendations for African American preschool students based off of composite scores on the KABC-II as there were no significant differences in performance in comparison to Caucasians (Dale et al., 2011).

There are studies evaluating the KABC II with school age children but they are few in number. In a study conducted by McKown (2010), the KABC-II FCI and MPI scores were compared to the WISC-IV Full Scale IQ. This study found that the two tests yielded comparable results in a student population referred for academic problems, suggesting that practitioners could use the tests interchangeably. The study also found "very strong" correlations between the WISC-IV FSIQ and KABC-II FCI and MPI.

A study by Oliver, conducted in 2011, compared the WISC-IV General Ability Index (GAI) and the KABC-II FCI and MPI in a referred population within rural schools. The study discovered that the KABC-II MPI and FCI had a very strong correlation with the WISC-IV General Ability Index (GAI) when administered to students referred for academic difficulties. The study also found that the tests yielded results similar enough that the tests could be used interchangeably with this population.

A recent study was conducted by McGill and Busse in 2014 that looked at the incremental validity of the GIA-Extended (GIA-E) for the WJ-III COG. The result of this study was not consistent with the test authors' findings. The authors of the WJ-III COG recommend that the primary source of interpretation with the instrument lies within the CHC Cluster Scores. However, McGill and Busse (2014) found that the GIA-E should be given the largest interpretive weight because it accounted for the largest amount of variance across achievement indicators on the WJ-III ACH. They concluded even further that practitioner's that prefer to utilize the CHC Cluster

scores as the primary means for interpretation and forego the GIA-E are at risk for over interpreting the clusters which can reduce achievement prediction (McGill & Busse, 2014).

Purpose of the Study

This study was conducted based on the limited availability of research comparing the KABC-II and WJ-IV. Searches of published texts, scholarly journals, and of the internet were completed in an attempt to locate comparisons of these cognitive testing instruments completed prior to this study.

Research Questions

1. What is the correlation between the KABC-II FCI and the WJ-IV COG GIA?

   Hypothesis I: There will be a significant correlation between the WJ-IV COG GIA and the KABC-II FCI.

2. What is the correlation between the KABC-II MPI and the WJ-IV COG GIA?

   Hypothesis II: There will be a significant correlation between the WJ-IV COG GIA and the KABC-II MPI.

3. Do the KABC-II FCI and MPI and the WJ-IV COG GIA yield comparable scores when administered to the same student?

   Hypothesis III: The WJ-IV COG and KABC-II FCI and MPI will produce comparable scores when they are administered to the same student.

4. What is the Standard Error of Estimate for the WJ-IV COG when predicting performance on the KABC-II MPI and FCI when administered to students who had been referred for a multi-factored evaluation?

Hypothesis IV: The Standard Error of Estimate (SEest) for the WJ-IV COG when predicting the KABC-II Fluid-Crystalized Index and Mental Processing Index when administered to referred students will be no more than 10

5. Would a referred student be placed in the same eligibility category if given either the WV-IV COG or KABC-II?

   Hypothesis V: Referred students would be placed in the same eligibility category if given either the WJ-IV COG or KABC-II test.

CHAPTER TWO

METHOD

Subjects

The study included 30 students between the ages of 8 years 0 months to 13 years 9 months who attend a suburban school district in Central Ohio. The sample consisted of 15 Caucasian students and 15 African American students; the sample consisted of 19 males and 11 females with an average age of 11 years 5 months (See Table 1 for sample demographics). Students became eligible for participation in the study by being referred based off of mandatory triennial reevaluation regulations or were referred for an initial evaluation though the Intervention Assistance Team (IAT).

Instruments

KABC-II. The KABC-II cognitive test was published in 2004. The KABC-II's normative data was collected from September of 2001 through January of 2003. The normative sample included 3,025 students ranging in age from 3 years old through 18 years of age (Kaufman & Kaufman, 2004). The participants of the sample were stratified into six month age groups for ages 3:0 through 4:11 and in one-year increments for ages 5:0 through 18:11 (Kaufman & Kaufman, 2004). Data collection was conducted at127 sites in 39 states and the District of Columbia. The sample was designed to represent the U.S. population of children and adolescents aged 3-18 who speak English, are non-institutionalized, and do not have physical or perceptual impairments that would prevent them from being able to perform the tasks (Kaufman & Kaufman, 2004). An equal distribution of males and females were included in the sample. The "March 2001 Current Population Survey" was used as the basis for the demographic design of

the KABC-II norm sample. The sample was based on the following variables: geographic region, ethnic group, and education level of the mothers or female guardian of the children (if the mother's education was not available, the father's education level was used) (Kaufman & Kaufman, 2004).

WJ-IV COG. The WJ-IV COG test was published in 2014. The WJ-IV COG's normative data was collected from December 2009 through January 2012 (McGrew, et al., 2014). The normative sample included 7,416 participants ranging in age from 24 months through 90+ years of age, grades K-18.0. The normative sample was divided into education categories including Preschool participants (n=664), K-12 participants (n=3,891), College/University participants (n=775), and Adult participants (n=2,086) (McGrew, et al., 2014). Data collection was conducted in 46 states and the District of Columbia within 100 geographically diverse communities. The Standards for Educational and Psychological Testing guided the norming and technical analyses (McGrew, et al., 2014).

Procedures

Informed consent was signed by the parent or legal guardian of each student during the referral process. Both the WJ-IV COG and KABC-II was administered by one School Psychology Intern, under the supervision of a licensed School Psychologist, as part of the normal multi-factored evaluation team report process and in compliance with the Ohio Operating Standards. The WJ-IV COG and the KABC-II were administered in a counterbalanced order to the participants to reduce the testing effect. The examiner alternated giving each instrument first. Tests were administered on separate days with no more than one week between the first and second test

administration. Students with more than one week between administrations were not used for the study. Also, students that engaged in task refusal on any portion of either test were not used in the study as task refusal may have impacted the intelligence scores for those students.

CHAPTER THREE

RESULTS

Hypothesis I- There will be a significant correlation between the WJ-IV COG GIA and the KABC-II FCI.

A Pearson correlation was computed between the General Intellectual Ability (GIA) score from the WJ-IV COG and the Fluid-Crystalized Index. There was a significant positive correlation with $r = .86$ ($n=30$, $p<.05$) (See Figure 1 for the scatterplot). (See Table 2 for the Mean and Standard Deviation for each score set).

Hypothesis II- There will be a significant correlation between the WJ-IV COG GIA and the KABC-II MPI.

A Pearson correlation was conducted between the WJ-IV COG General Intellectual Ability (GIA) score and the KABC-II Mental Processing Index (MPI) finding a correlation of $r = .83$ ($n=30$, $p<.05$) indicating a significant positive relationship between the two scores. (See Figure 2 for scatterplot; see Table 2 for the Mean and Standard Deviation for each score set).

Hypothesis III- The WJ-IV COG and KABC-II FCI and MPI will produce comparable scores when they are administered to the same student.

A paired t-test was conducted between the WJ-IV COG GIA and KABC-II FCI and MPI to determine if the scores were comparable or if the scores varied enough to be considered significantly different. The first t-test conducted between the WJ-IV COG GIA and KABC-II FCI resulted in the scores being significantly different ($t_{(29)}=3.57$, $p<$

.001) (See Table 2). The second t-test computed between the WJ-IV COG and KABC-II MPI also yielded significant results ($t_{(29)}=3.07$, $p< .05$) (See Table 2).

Hypothesis IV- Standard Error of Estimate (SEest) for the WJ-IV COG when predicting the KABC-II Fluid-Crystalized Index and Mental Processing Index when administered to referred students will be no more than 10.

The Standard Error of Estimate (SEest) for the WJ-IV COG when predicting the KABC-II FCI was 8.6 points. The Standard Error of Estimate (SEest) for the WJ-IV COG when predicting the KABC-II MPI was 9.3 points.

Hypothesis V- Referred students would be placed in the same eligibility category if given either the WJ-IV COG or KABC-II tests.

In this study, it was found that 7 students had scores that varied enough between the two tests in which eligibility and/or category placement could have been affected which would also impact the consideration of the educational needs and academic implications for the students. Of those 7 students, 3 of the students were female (1 Caucasian and 2 African American students) and 4 of the students were male (2 African American and 2 Caucasian students) (See Table 3).

CHAPTER FOUR

DISCUSSION

This study was conducted to obtain quantitative comparison data for the KABC-II and the recently released WJ-IV COG in a referred student population. The results of the study demonstrated that there were significant positive correlations between the overall General Intellectual Ability (GIA) score on the WJ-IV COG and both the Fluid-Crystallized Index (r =.86) and Mental Processing Index (r = .83) on the KABC-II in the 30 student sample. This is similar to results found by McGrew, et al., (2014) during the norming process of the WJ-IV COG, which yielded correlations of r =.72 (FCI) and r =.77 (MPI), and previous research involving the WJ-III COG. The significant correlations indicate that the tests measure a similar construct of *g*.

The t-tests that were conducted to determine if the intelligence tests yielded similar results indicated that scores obtained on the KABC-II FCI and MPI were not equal to the GIA score obtained on the WJ-IV COG. Although both tests measured a similar construct, *g*, as shown in correlation, the t-tests indicated that using both tests on the same individual student may result in significantly different scores. This suggests that the KABC-II and WJ-IV may not be able to be used interchangeably by practitioners in a referred student population with academic problems.

Previous studies (McKown, 2010; Oliver, 2011) used a Standard Error of Estimate (SEest) of 7 (Oliver, 2011) and 10 (McKown, 2010) to form their hypotheses which influenced the SEest selection for this study. When the Standard Error of Estimate was calculated, it was found that the WJ-IV GIA would be expected to fall 8.6 points in either direction of the KABC-II FCI and 9.3 points in either direction of the MPI 68 percent of the time. While SEest for the WJ-IV GIA predicting the KABC-II FCI and MPI fell below 10, there is still a rather large amount of error that

leads to large confidence intervals, larger than a standard deviation, when predicting the FCI or MPI. Again, this suggests that the two instruments may not be able to be used interchangeably.

The results found in this study are of beneficial use to practitioners. While these instruments do have a high correlation to one another, students' scores between the assessments differed significantly. Within this particular group of 30 students, 7 students had scores that were different enough between the instruments that the placement eligibility category could have been impacted. Practitioners should keep in mind the disability being suspected when selecting one of these instruments to use with a student referred for academic difficulties. The KABC-II has a time component on four out of ten core subtests which can significantly impact performance in students with deficits in the speed of processing information. The WJ-IV COG Number Series Test may impact the overall intelligence score for students with math specific learning disabilities. The General Information test on the WJ-IV COG is culturally loaded, which should be taken into consideration when working with students with limited access to mainstream culture. The WJ-IV COG is verbally loaded with G*c* being more heavily weighted in the calculation of the GIA score (Mather & Wendling, 2014; McGrew, et al., 2014); therefore, students that have deficits in language development and limited access to mainstream culture may perform lower on this assessment in comparison to the KABC-II. Further, if a practitioner is suspecting or knows if a student has a specific disability that is verbal in nature, the WJ-IV COG may not be the best instrument to use for those particular students in determining overall intelligence. Also, based off of previous research, the KABC-II may be better suited and more developmentally appropriate for students in grades pre-kindergarten through fifth (Dale, et al., 2011; Hunt, 2007).

There are several limitations of the current study including any unknown variance within the sample and the size of the sample. First and foremost, more studies need to be conducted with

larger sample sizes to confirm the results found in this study for additional validation. Secondly, while the sample was representative of the population within the district, it would be beneficial to obtain more comparison information about the performance of referred minority populations specifically. Thirdly, a comparison among the KABC-II scale scores and WJ-IV COG cluster scores may be beneficial in understanding the specifics of how the instruments are similar and how they differ. Lastly, It should be noted that the norms for the KABC-II, published in 2004, are now over a decade old. It has been shown, according to the Flynn effect, that intelligence scores can vary by three points over a decade. McGrew, et al., 2014 acknowledge that the WJ-IV COG is a significantly different intelligence test than previous editions of the WJ COG and different from other intelligence tests currently on the market thus tests are intentionally not comparable. Future studies will determine if the new design of the WJ-IV COG yields superior diagnostic information.

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Table #1

Participant Information

Student	Age in months	Race[1]	Gender[2]	KABC-II FCI	WJ-COG-IV GIA	KABC-II MPI
1	123	1	1	97	91	99
2	132	1	1	88	73	86
3	159	1	2	109	105	108
4	103	1	1	91	92	88
5	129	2	1	91	94	97
6	131	2	1	94	85	95
7	148	1	2	69	73	67
8	122	1	2	92	100	91
9	167	1	1	115	108	109
10	114	2	1	74	88	67
11	110	1	1	99	100	95
12	124	2	1	73	71	72
13	153	1	2	78	65	80
14	166	1	2	95	98	96
15	129	1	2	86	73	83
16	123	2	1	103	94	107
17	149	2	2	109	95	111
18	146	1	2	134	126	131
19	145	1	1	92	75	90
20	160	2	1	111	83	112
21	135	2	1	112	102	109
22	146	2	2	60	43	62
23	156	2	1	70	61	69
24	100	2	2	105	94	99
25	143	2	1	79	82	81
26	123	2	1	98	86	98
27	144	1	2	81	82	86
28	133	1	2	77	78	78
29	141	2	1	106	102	109
30	163	2	1	105	102	107

[1]Race is broken down into two groups, 1= African American student and 2=Caucasian student.
[2]Gender is broken into two different groups, 1=male student and 2=female student.

Table #2

Means, Standard Deviations, t-tests for GIA/MPI and GIA/FCI

		Mean	N	Std. Dev.	t-test
Pair 1	General Intellectual Ability	87.4	30	16.5	t=3.57, p<.001
	Fluid-Crystallized Index	93.1	30	16.5	
Pair 2	General Intellectual Ability	87.4	30	16.5	t=3.07, p<.05
	Mental Processing Index	92.7	30	16.3	

Table #3

Students in Which Placement Could Have Potentially Been Affected

Student	Age in months	Race[1]	Gender[2]	FCI	GIA	MPI	FCI-GIA[3]	MPI-GIA[4]
2	132	1	1	88	73	86	15	13
10	114	2	1	74	88	67	-14	-21
13	153	1	2	78	65	80	13	15
15	129	1	2	86	73	83	13	10
19	145	1	1	92	75	90	17	15
20	160	2	1	111	83	112	28	29
22	146	2	2	60	43	62	17	19

[1]Race is broken down into two groups, 1= African American student and 2=Caucasian student.
[2]Gender is broken into two different groups, 1=male student and 2=female student.
[3]The difference between students' test scores when the GIA is subtracted from the FCI.
[4]The difference between students' test scores when the GIA is subtracted rom the MPI.

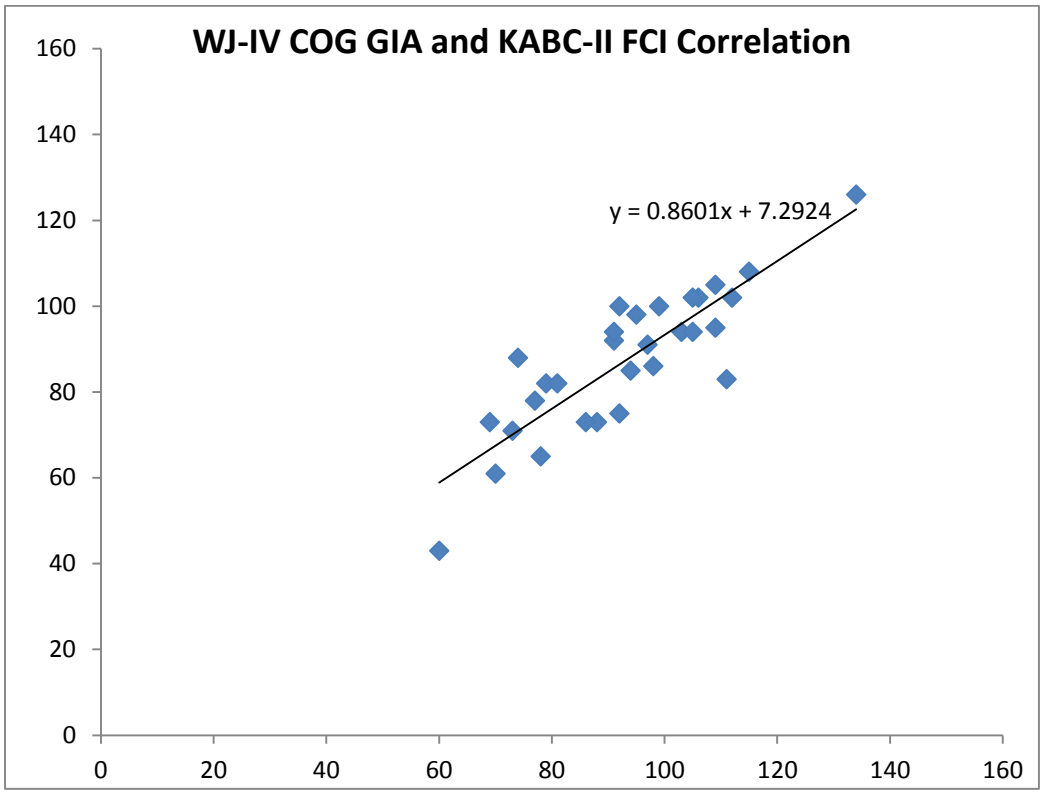

Figure 1. A Pearson correlation was computed between the General Intellectual Ability (GIA) score from the WJ-IV COG and the Fluid-Crystalized Index. The relationship was found to be a very strong positive correlation with r = .86 (n=30, p<.05)

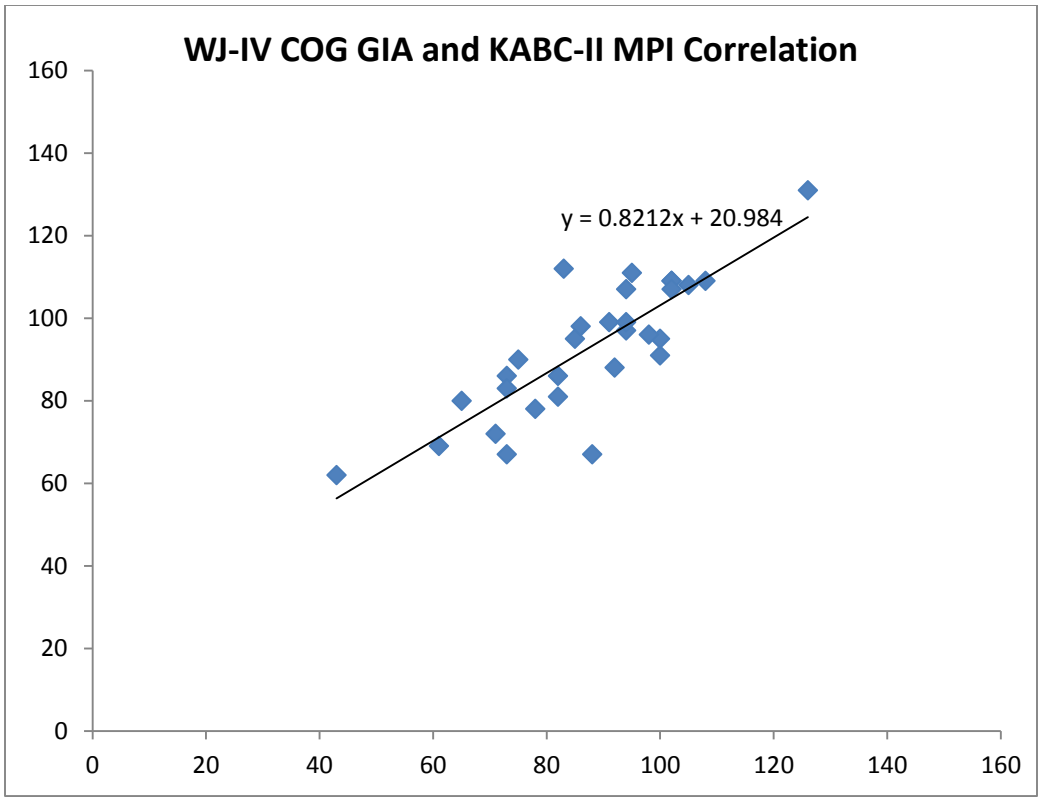

Figure 2. A Pearson correlation was conducted between the WJ-IV COG General Intellectual Ability (GIA) score and the KABC-II Mental Processing Index (MPI) finding a correlation of r = .83(n=30, p<.05) indicating a "very strong" positive relationship between the two scores.

APPENDIX A: Letter from Institutional Review Board

Office of Research Integrity
Institutional Review Board
401 11th St., Suite 1300
Huntington, WV 25701

FWA 00002704

IRB1 #00002205
IRB2 #00003206

April 29, 2015

Sandra Stroebel, Ph.D.
School Psychology

RE: IRBNet ID# 733667-1
At: Marshall University Institutional Review Board #2 (Social/Behavioral)

Dear Dr. Stroebel:

Protocol Title:	[733667-1] A Comparison Study: Kaufman Assessment Battery for Children, Second Edition (KABC-II) and Woodcock-Johnson Tests of Cognitive Abilities, Fourth Edition (WJ-IV COG) with students referred for academic problems.
Expiration Date:	April 29, 2016
Site Location:	MUGC
Submission Type:	New Project APPROVED
Review Type:	Exempt Review

In accordance with 45CFR46.101(b)(1), the above study was granted Exempted approval today by the Marshall University Institutional Review Board #2 (Social/Behavioral) Designee for the period of 12 months. The approval will expire April 29, 2016. A continuing review request for this study must be submitted no later than 30 days prior to the expiration date.

This study is for student Desiree Nutt.

If you have any questions, please contact the Marshall University Institutional Review Board #2 (Social/Behavioral) Coordinator Bruce Day, ThD, CIP at 304-696-4303 or day50@marshall.edu. Please include your study title and reference number in all correspondence with this office.

VITAE

Desiree Rachelle Nutt, M.A.
Telephone: 740-418-6733
Email: nutt4@marshall.edu; dnutt@laca.org

Objective:

- To obtain a position as a school psychologist and use my skills in assessment, intervention, consultation, individual therapy, group therapy, and collaboration to promote the best possible education for every ,student.

Education:

2010-Present **Marshall University** **Huntington, WV**

- Master of Arts in Psychology: December 2012
- Education Specialist Program in School Psychology, Anticipated Graduation : May of 2015

2005-2010 **Shawnee State University** **Portsmouth, OH**

- Bachelor of Arts in Psychology: May 2010

Professional Licensure Examination:

April 2014 Praxis II Score: 183 National and State Certification Eligible Upon Graduation

Experience:

School Psychologist Intern- Licking County Educational Service Center
August 2014- Current

Internship Supervisor: Elisabeth Kraemer, Ed.S., NCSP
Licking Heights Local School District

Flying Colors Public Preschool
Site Supervisor: Rachael Anson, Ed.S.

- Conduct Psychoeducational Assessments for Multi-Factored Evaluations and Lead the Meetings
- Assist with Preschool-to-Kindergarten Transition Assessments
- Conduct Screenings for Preschool Children Based off Parent, Doctor, and/or Alternative Learning Site Referrals as Part of "Child Find" and Collaboration with "Help Me Grow".
- Schedule and Conduct Play Based Assessments for the Flying Colors Newark Site.
- Conduct Individual Therapy
- Conduct Group Therapy
- Develop and Present presentations for Parents and for Teacher Professional Development
- Assist with the Implementation of Math Curriculum Based Benchmarking and Progress Monitoring
- Conduct Collaborative Behavior and Academic Consultations with Parents, Teachers, and Students to Design Appropriate Intervention Strategies.

- Collect and Analyze Data Collected from Interventions to Determine Effect Size and Goal Attainment
- Participate in Intervention Assistant Teams
- Complete Functional Behavior Assessments and Create Behavior Intervention Plans.
- Work in Conjunction with Flying Colors and Pathways of Central Ohio to Conduct a Program Evaluation of the Incredible Years Parent Training Program.

Practicum Student, Marshall University Summer Program

May 2014- July 2014
Stonewall Jackson Middle School
Charleston, WV

- Working Collaboratively with a Team to Conduct and Implement a Tier II-Tier III Classroom Educational Environment for Students Ranging From Preschool to First Grade.
- Helped Classroom Teacher Design Lesson Plans with Multi-Modal Methods and Evidence-Based Interventions Incorporated.
- Conducting Psychoeducational Assessments for Multi-Factored Evaluations.
- Developed and Presented Parent Presentation on Cyber Bullying.
- Conducted Group Therapy- Social Skills, Pre K- K
- Conducted Individual Therapy
- Assisted with the Implementation of DIBELS Reading and Saxxon Math Curriculum Based Assessments for Benchmarking and Progress Monitoring.
- Collected and Analyzed Data Collected from Interventions and Progress Monitoring to Determine Effect Size, Goal Attainment, and to Help Modify Lessons Accordingly.
- Conducted hands on participation in learning, play, and behavior centers in the classroom.
- Designed the Classroom Behavior Management Program.
- Created Functional Behavior Assessments and Behavior Intervention Plans.

Practicum Student, Nitro Elementary

February 2014-May 2014
Practicum Supervisor: Carla Donahue, Ed.S, NCSP

- Conducted Psychoeducational Assessments for Multi-Factored Evaluations.
- Participated in Student Assistant Teams
- Conducted Individual Therapy
- Conducted Group Therapy
- Collected and Analyzed Data Collected from Interventions and Progress Monitoring to Determine Effect Size and Goal Attainment.
- Conducted Collaborative Behavior and Academic Consultations with Parents, Teachers, and Students to Design Appropriate Intervention Strategies.
- Completed Functional Behavior Assessments and Created Behavior Intervention Plans.

Practicum Student, Wirt County Primary Center

Elizabeth, WV
March 2013-February 2014
Practicum Supervisor: Dr. Fred. J. Krieg and Dr. Sandra Stroebel

- Conducted Psychoeducational Assessments for Multi-Factored Evaluations.
- Participated in Student Assistance Teams.
- Conducted Individual Therapy
- Conducted Collaborative Behavior and Academic Consultations with Parents, Teachers, and Students to Design Appropriate Intervention Strategies.
- Collected and Analyzed Data Collected from Interventions and Progress Monitoring to Determine Effect Size and Goal Attainment.
- Implemented DIBELS Reading Benchmarking and Progress Monitoring

- Implemented of Math, Writing, and Spelling Curriculum Based Assessments
- Completed Functional Behavior Assessments and Created Behavior Intervention Plans.

Graduate Assistant at Marshall University

Associate Dean's Office Assistant and School Psychology Program Assistant
August 2013- August 2014
Supervisors : Dr. Sandra Stroebel and Dr. Fred J. Krieg

- Edited Department Scholarly Articles for Content and References
- Worked on Locating and Developing Grants for the School Psychology Program
- Graded and Checked Student Assessment Protocols for Accuracy
- Created and Developed Informational Brochures and Recruitment Brochures to Advertise the College/Program/Select Services
- Took Inventory and Ordered Assessment Protocols/Kits/Materials
- Coordinated and Orchestrated Program Meetings, Events, and Luncheons
- Organized and Prepared Information for Meetings
- Conducted Filing Duties

Marshall University Adjunct Professor, Psychology
Huntington, WV
August 2013-May 2014

- Selected, organized, designed, and presented information relevant to instruct a class ranging from 30-50 students about the foundations and principles of psychology
- Designed and Graded Assessments to Test Students' Knowledge of Classwork
- Designed and Graded Projects to Test Students' Competency of Course Work.

Teaching Assistant at Marshall University
Huntington, WV
August 2012-May 2013
Supervisor: Dr. Steven Mewaldt. Ph.D.

- Job Duties Same as Listed Above for Adjunct Professor.

Lab Assistant, Marshall University School of Medicine, Neuroscience Department
January 2011-December 2011
Supervisors: Dr. Mark M. Stecker, M.D. & Matthew Stevenson

- Edited Scholarly Articles for Content and References
- Helped Collect, Enter, and Analyze Data Using Macros on STATISTICA
- Helped Setting Up and Tearing Down the Experiment Daily
- Made Chemical Solutions
- Kept Inventory of Lab Chemicals
- Cleaned/Sterilized Lab Equipment.

Childcare Worker (CCW), Golden Girl Group Home
Ceredo, WV
July 2010-January 2011
Supervisor: Connie Aliff-Cole

- Conducted Supportive Individual Counseling
- Conducted Crisis Intervention and Prevention with Residents
- Conducted Life Skills Training with Residents
- Orchestrated Daily Household Duties/Schedules with the Residents
- Took residents to Appointments
- Supervised Trips Off Campus
- Orchestrated Activities with the Residents

- Cooked for the Residents

Lab Assistant, Shawnee State University, Psychology Department Physiological Psychology Lab
January 2009-July 2010
Portsmouth, OH
Supervisor: Dr. Kyle Vick, Ph.D.

- Set Up and Tore Down Experiments Daily
- Helped Professor Answer Classroom Students' Questions During Lab
- Constructed Chemical Solutions,
- Kept Inventory of Lab Chemicals,
- Constructed Neural Signal Apparatuses
- Cared for Lab Animals
- Cleaned/Sterilized Lab Equipment

Previous Research Experience:
Kacir, C., Wang, J., Jones, A., & Nutt, D. (2010). Eye Color and Pupil Size: Effects on Mate Selection in Women", co-investigator and co-presented at Midwestern Psychological Association April 29, 2010.

Volunteer Work:
American Red Cross
Disaster Action Team Member (Ohio River Valley Chapter, 2012-Current) Fundraising for local and national disaster relief, public relations, shelter operations, disaster assessment. Director Kim Wortman; contact information available upon request.

References:

Elisabeth Kraemer, Ed.S., NCSP
IAT Coordinator and School Psychologist, Internship and Site Supervisor
Licking Heights Local Schools
E-mail: ekraemer@laca.org Work Phone: 740-927-3365 Cell: 419-450-1931

Jessica Thompson, Ed.S.
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Licking Heights Central Middle School
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Rachael Anson, Ed.S
School Psychologist, Site Supervisor
Flying Colors Public Preschool
E-mail: ranson@laca.org Phone: 740-349-1629

Dr. Sandra Stroebel, Ph. D.
Associate Dean and School Psychology Program Director
College of Education and Professional Development
E-mail: stroebel@marshall.edu Phone: (304) 746-2032

Additional Professional References Available Upon Request