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Examining the Convergent Validity of the Wechsler Individual Achievement Test - Third Edition and the Woodcock-Johnson III Tests of Achievement - Form A - Standard Battery

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**EXAMINING THE CONVERGENT VALIDITY OF THE WECHSLER INDIVIDUAL
ACHIEVEMENT TEST – THIRD EDITION AND THE WOODCOCK-JOHNSON III
TESTS OF ACHIEVEMENT – FORM A – STANDARD BATTERY**

A Master's Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Psychology

By

Trent Howard Walters

August 2020

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Psychology

Missouri State University, August 2020

Master of Science

Trent Howard Walters

ABSTRACT

The Wechsler Individual Achievement Test-Third Edition (WIAT-III) and the Woodcock-Johnson III Tests of Achievement (WJ III ACH) are two commercial standardized tests of academic achievement that are utilized in many settings, including educational, research, and clinical settings. Both measurements purport to measure academic achievement across a variety of curricular areas. Both instruments yield subtest and cluster or composite scores in the modes of percentile ranks, standard scores, stanines, normal curve equivalent scores, and age/grade equivalent scores. In the current study, similar subtest and composite or cluster standard scores were correlated to determine the degree of convergent validity between the two tests. The sample consisted of adults, mostly college aged ($n = 27$). Results indicate that the two instruments are measuring similar constructs, with statistically significant correlations found between 10 out of 13 total composites/clusters and subtests that were compared. Results also indicate statistically significant differences among almost all of the mean standard scores of composites/clusters and subtests of the two assessments, suggesting that the instruments are measuring similar constructs of academic achievement in significantly different ways. Mean comparisons between the sample and the normative population indicate that this is a special sample.

KEYWORDS: Weschler Individual Achievement Test, Woodcock-Johnson Tests of Achievement, academic achievement, achievement, convergent validity

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A Master's Thesis
Submitted to the Graduate College
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August, 2020

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In the interest of academic freedom and the principle of free speech, approval of this thesis indicates the format is acceptable and meets the academic criteria for the discipline as determined by the faculty that constitute the thesis committee. The content and views expressed in this thesis are those of the student-scholar and are not endorsed by Missouri State University, its Graduate College, or its employees.

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INTRODUCTION

Academic Achievement

Definition and Brief History of Assessment. The first standardized achievement test was published in 1914 (Nitko & Lane, 1990, p. 405). The early 1900's experienced a burgeoning growth in standardized achievement testing due in part to the inconsistent nature of classroom assessment at the time and effort to research the efficacy of standardized achievement tests. At the turn of the twentieth century, Joseph Mayer Rice surveyed a number of U.S. schools and found that their curriculums and methods of assessment differed widely (Nitko & Lane, 1990, p. 406). Rice also administered standardized assessments of "spelling, arithmetic, handwriting, and composition," during his survey, and his results found that there was tremendous variance of scores among students, with the results being independent of teaching methods or time spent teaching a particular subject (Nitko & Lane, 1990, p.406). The development of standardized achievement assessments progressed rapidly during this time, especially due to the contributions of Edward L. Thorndike, who publicly emphasized the importance of quantitatively measuring achievement and developed the first standardized measures of school achievement. By 1939, approximately 4,200 assessments and rating scales had been designed (Nitko & Lane, 1990, p. 408).

Achievement tests measure the teachable content and problem-solving processes already present in the student at the time of examination (Willson, 1989, p. 1). Tests are constructed to represent content areas covered in U.S. elementary and secondary education schools (Willson, 1989, p. 1). Achievement tests measure recently learned concepts and are typically not designed to be indicative of future achievement, which aptitude tests attempt to measure (Willson, 1989, p.

9). Commercially developed and administered achievement tests are typically referred to as standardized tests. A standardized test is one that can be used across academic settings. Furthermore, the process of administration and scoring must be able to be completed in the same way regardless of time or location of administration (Airasian, 1997, p. 309). Standardized tests typically present their results in many forms, such as raw scores, percentile ranks, and standard scores. Standard scores are derived scores that are used to identify the individual's score in relation to his or her peers (Wodrich, 1984, p. 9). Standard scores are determined by the standard deviation of the group scores, which is calculated from the normative sample. Standardized tests typically also compute percentile ranks, which show what percentage of the normative population the individual's scores fall above (Wodrich, 1984, p. 7). Standardized tests typically are developed using a large nationwide sample of students, which prevents individual results from being skewed by local demographic variables such as quality of instruction or parental income level (Chase, 1999, p. 287).

Purpose of Standardized Achievement Tests. There are several uses of standardized achievement tests. Knowledge of the student's level of performance, including strengths and weaknesses across a broad range of skills and content areas, can provide teachers information as to how best instruct the student, and with what areas the student may need assistance (Willson, 1989, p. 2). For example, reading and mathematics are typically assessed content areas, and standardized tests typically target specific skills within these areas, such as reading speed and written syntactic maturity (Chase, 1999, p. 305). They can also be used to determine the student's readiness to advance to more complex instructional topics. Achievement tests are also frequently used to chart student performance over time (Airasian, 1997, p. 309). The most cited and validated usage for standardized achievement tests is to discern the capacity of the student's

basic academic skills (Willson, 1989, p. 2). As such, achievement tests are frequently used in the process of diagnosing learning disorders (Reynolds, 1990, p. 571). Although federal law does not specify the exact method clinicians must use in determining the presence of a learning disability, most states comply with the usage of standardized achievements to determine if a significant difference between achievement scores, IQ scores, and grade level equivalencies are present (Reynolds, 1990, p. 574).

Validity. Validity describes the degree to which a test accurately measures the construct it is designed to measure (Wallace, Larsen, & Elksnin, 1992, p. 42). Validity has been described as the most crucial aspect of a measure (Airasian, 1997, p. 24). There are several types of validity, including criterion, face, content, and construct validity. Wallace, Larsen, & Elksnin (1992) describe criterion-related validity as “the degree to which a new test either predicts future behavior (predictive validity) or predicts contemporaneous behavior (concurrent validity)” (p. 44). Predictive validity involves initially measuring a construct, then measuring the construct again using a similar measurement after a set amount of time has passed. Concurrent validity is assessed by comparing the results of the measurement of a construct with a measure which has been proven a valid measure of said construct. A significant correlation between the two measures would imply that they both accurately measure the construct they are designed to observe. Convergent validity refers to the extent that two measures describe a similar construct (Carlson & Herdman, 2012). Convergent validity does not describe how well each individual measure describes the construct in question; instead, ideal measurements of convergent validity involve two measures which have been proven to be valid and reliable instruments at measuring said construct.

The Wechsler Individual Achievement Test – Third Edition and the Woodcock-Johnson III Tests of Achievement are two standardized measures of academic achievement which have demonstrated considerable reliability and validity (Bradley-Johnson, Morgan, & Nutkins, 2004; Vaughan-Jensen, Adame, McLean, and Gámez, 2011). These tools measure academic proficiency using several differently designed subtests. These measures differ in the number of subtests, average time of administration, and task design (Bradley-Johnson, et. al, 2004; Vaughan-Jensen, et. al, 2011). The convergent validity of these two measures, which refers to the extent that these measures accurately capture academic achievement, has never been examined. Examining the convergent validity of these instruments will be valuable in determining if these measures are interchangeable measures of academic achievement; and considering the individual differences between the two, such as time of administration and the availability of supplemental data collected, the results of the study may provide clinicians valuable information as to which measure to administer to their students and clients.

Wechsler Individual Achievement Test-Third Edition (WIAT-III).

Background and Basic Information. *The Wechsler Individual Achievement Test-Third Edition* (WIAT-III) is a comprehensive academic assessment instrument (Vaughan-Jensen, et. al, 2011). It is constructed to assess academic skills in a variety of domains, including reading, writing, speaking, listening, and mathematics. The test may be administered to individuals in grades pre-kindergarten through twelfth, or individuals aged four years through fifty years, eleven months.

The previous version of the WIAT, the WIAT-II, was published in 2005 (Vaughan-Jensen, et. al., 2011). The third edition of the WIAT-III was developed in part to satisfy the

conditions specified in the Individuals with Disabilities Act of 2004, as it provides coverage for every academic domain mandated to diagnose a learning disability (Burns, 2010). In order to meet this mandate, the developers of the WIAT-III added five new subtests (Oral Reading Fluency, Early Reading Skills, Math Fluency-Addition, Math Fluency-Subtraction, and Math Fluency-Multiplication) and split the Written Expression subtest found in the WIAT-III into three separate subtests (Sentence Composition, Essay Composition, and Alphabet Writing Fluency) (Wahlstrom, Breaux, Zhu, & Weiss, 2012). Developers of the WIAT-III also took steps to reduce floor and ceiling effects, and to remove as much ethnic and cultural bias as possible (Burns, 2010). The WIAT-III can be used in educational, clinical, and research settings. The results found from administering the WIAT-III may be used to “(a) identify the academic strengths and weaknesses of a student, (b) inform decisions regarding disability eligibility for educational purposes, and (c) design instructional objectives and plan interventions” (Psychological Corporation, 2009a, p. 5).

Subtests and Composites. The WIAT-III is composed of 16 subtests, which, in various combinations, form eight composite scores. These eight composite scores are derived from at least two subtests. The WIAT-III subtest content is administered according to the grade level of the testee. Grade level content within some subtests is only administered to a testee’s corresponding grade level. In other subtests, the start level for subtest administration is based on the testee’s grade level (Psychological Corporation, 2009a). Based on the purpose of the examination and the examiner’s needs, the WIAT-III does not need to be administered completely. However, omission of subtests from the full standard battery during an administration of the WIAT-III will lead to inaccurate composite scores (Psychological Corporation, 2009a).

The Oral Language composite consists of the Oral Expression and Listening Comprehension subtests. The Oral Expression subtest is administered to grade levels pre-kindergarten through twelfth grade, and it includes three separate components: Expressive Vocabulary, Oral Word Fluency, and Sentence Repetition. Expressive Vocabulary measures word retrieval capability and oral vocabulary. Oral Word Fluency measures word retrieval efficiency and flexibility of thought operations. Sentence Repetition measures short-term memory and oral-syntactic knowledge. The Listening Comprehension subtest is administered to grade levels pre-kindergarten through twelfth grade, and it consists of two components: Receptive Vocabulary and Oral Discourse Comprehension. Receptive Vocabulary measures auditory vocabulary, and Oral Discourse Comprehension measures a testee's ability to remember details about and inferences from orally-presented sentences (Psychological Corporation, 2009a).

The Written Expression composite score is derived from the scores of the Alphabet Writing Fluency, Sentence Composition, Spelling, and Essay Composition subtests. Alphabet Writing Fluency measures one's ability to correctly write letters of the alphabet within thirty seconds, and it is administered only to individuals in pre-kindergarten through the third grade. Sentence Composition is administered to grades first through twelfth, and it contains two components: Sentence Combining and Sentence Building. Sentence Combining gauges written syntactic maturity and sentence formulation abilities. Sentence Building measures written syntactic ability and sentence formulation skills. The Spelling subtest is administered to individuals in grades kindergarten through the twelfth, and measures "written spelling of letter sounds and single words" (Psychological Corporation, 2009a, p. 5). The Essay Composition subtest is administered to individuals third through twelfth and gauges an individual's written expression capabilities in a ten-minute time limit (Psychological Corporation, 2009a).

The Total Reading composite score is derived from the scores of the Word Reading, Reading Comprehension, Oral Reading Fluency, and Pseudoword Decoding subtests; all of these subtests are administered to individual's grades one through twelve. The Word Reading subtest gauges an individual's ability to read aloud words, and measures the speed and accuracy of that individual's performance. The Reading Comprehension subtest measures an individual's reading accuracy and comprehension of diverse passages. The Oral Reading Fluency subtest measures "speed, accuracy, fluency, and prosody of contextualized oral reading" (Psychological Corporation, 2009a, p. 5). Pseudoword Decoding judges an individual's accuracy in reading aloud nonsense words. Two additional composite scores can be obtained from the four aforementioned subtests: Basic Reading and Reading Comprehension and Fluency. The Basic Reading composite is composed of the Word Reading and Pseudoword Decoding subtests, and the Reading Comprehension and Fluency composite is composed of the Reading Comprehension and Oral Reading subtests. One additional subtest, Early Reading Skills, does not contribute to a composite score. Early Reading Skills is administered to individuals pre-kindergarten through the third grade, and measures "areas deemed important for developing reading skills: naming letters, letter-sound correspondence (alphabetic principle), phonological awareness, and word reading comprehension" (Psychological Corporation, 2009a, p. 4).

The Mathematics composite score is derived from the Numerical Operations and Math Problem Solving subtests. The Numerical Operations subtest is administered to individuals kindergarten through the twelfth grade and measures "untimed, written math calculation skills in the following domains: basic skills, basic operations with integers, geometry, algebra, and calculus" (Psychological Corporation, 2009a, p. 4). The Math Problem Solving subtest is administered to the pre-kindergarten through twelfth grade range and gauges problem-solving

skills in a variety of areas, including everyday applications, algebra, and geometry (Psychological Corporation, 2009a).

The Math Fluency composite consists of the Math Fluency – Addition, Math Fluency – Subtraction, and the Math Fluency – Multiplication subtests. Math Fluency – Addition and Math Fluency – Subtraction are administered to individuals in grades first through twelfth, and Math Fluency – Multiplication is administered to individuals in grades third through twelfth. Each test measures the accuracy and speed of an individual's mathematical calculation skills in basic operations of increasing difficulty, and each subtest has a sixty-second time limit. (Psychological Corporation, 2009a).

The Total Achievement composite score is derived from thirteen WIAT-III subtests. These subtests are the Listening Comprehension, Early Reading Skills, Oral Expression, Word Reading, Pseudoword Decoding, Oral Reading Fluency, Reading Comprehension, Alphabet Writing Fluency, Spelling, Essay Composition, Sentence Composition, Numerical Operations, and Math Problem Solving (Psychological Corporation, 2009a).

Psychometric Properties, Strengths, and Weaknesses. The grade-based portion normative sample of the WIAT-III consists of 2,775 students, grades pre-kindergarten through the twelfth. The age-based normative sample consisted of 1,826 students ages four through 19. An equal or nearly-equal ratio of males to females was ensured in each age and grade group. The racial composition of each sample was proportional to the population of each racial group in the U.S. Both samples were drawn from the national population of the U.S., with subject levels in proportion to the general population of four general regions in the U.S. which were derived from the U.S. census (Psychological Corporation, 2009b).

For all subtests without item-level data, or those subtests that are timed-tasks, reliability estimates were generated using test-retest stability coefficients. For all other subtests, reliability was determined using split-half reliability coefficients. (Psychological Corporation, 2009b, p. 27). Reliability coefficients and standard errors of measurement can be found in Tables 1 and 2, respectively. Test-retest reliability for subtest and composite scores was collected by administering the WIAT-III within a range of two to thirty-two days. The coefficients were found to have good to excellent reliability, from 0.64 to 0.96. The lowest reliability coefficients were observed among the more subjective subtests, such as Sentence Composition and Essay Composition. Average interscorer agreement ranged from 91% - 99% among all subtests (Psychological Corporation, 2009b).

Validity for the WIAT-III was mostly obtained in the previous versions of the WIAT. Subtests within composites present higher intercorrelations than those subtests in other, unrelated composites, which is to be expected and shows evidence of discriminate validity. Composite correlations are strongest amongst the reading composites; the weakest composite correlations were found between the Math Fluency composite and other composites. In validating the WIAT-III, the test was administered, in counterbalanced order, with the WIAT-II to 140 students grades PK-12. The length of time between tests was between one and thirty days, and the mean time between tests was nine days. Tables 3 and 4 list the correlations between common subtests and composites of the WIAT-III and WIAT-II.

Woodcock-Johnson III Tests of Achievement (WJ III ACH)

Background and Basic Information. The Woodcock-Johnson III Tests of Achievement (WJ III ACH) is a norm-referenced test of academic achievement (Mather & Woodcock, 2001).

It comprises a battery of subtests designed to measure five curricular areas: oral language, reading, mathematics, written language, and academic knowledge. The WJ III ACH is the third edition of the instrument and was published in 2001.

The Woodcock-Johnson III Tests of Achievement, as well as its counterpart, the Woodcock-Johnson III Tests of Cognitive Abilities (WJ III COG), were designed based on the Cattell-Horn-Carroll (CHC) theory of cognitive abilities (Mather & Woodcock, 2001). The WJ III ACH includes subtests that measure five CHC factor clusters. These clusters are quantitative knowledge (Gq), reading-writing ability (Grw), long-term retrieval (Glr), auditory processing (Ga), and comprehension-knowledge (Gc). The WJ III ACH can be used along with the WJ III COG to ascertain a comprehensive description of a person's cognitive and academic abilities. The WJ III ACH can also be administered to ascertain an individual's academic aptitude, including their strengths and deficiencies; this information can be used to diagnose any relevant disorders and to identify areas for intervention.

The WJ III ACH is accessible in two forms which possess the same information (Forms A and B) (Mather & Woodcock, 2001). The instrument is composed of the Standard Battery and the Extended Battery. The Standard Battery is the core measure of the battery and includes twelve subtests. The Extended Battery includes ten subtests and can be administered to obtain more in-depth diagnostic information than what the Standard Battery covers. The Standard Battery is typically administered to individuals in order to ascertain their complete academic profile, while the Extended Battery may be given to obtain supplemental information.

Subtests and Clusters. The WJ III ACH Standard Battery of subtests measures the five aforementioned curricular areas, as well as ten cluster scores (Mather & Woodcock, 2001). The ten cluster scores are each comprised of at least two of the subtests in the Standard Battery. The

WJ III ACH uses these ten clusters to form the foundation for interpreting the data obtained by the instrument. Interpretation drawn from the cluster scores is considered more robust than the subtest scores alone due to them combining multiple areas to form a picture of a broad ability.

The WJ III ACH Standard Battery derives only one cluster for the oral language curriculum. This cluster, the Oral Language-Standard cluster, is derived from the Story Recall and Understanding Directions subtests. The cluster describes “an aggregate measure of linguistic competency, listening ability, and comprehension” (Mather & Woodcock, 2001, p. 17). The Story Recall subtest involves having an individual listen to several stories of increasing complexity and recall details in the stories. It seeks to measure “language development and meaningful memory” (Mather & Woodcock, 2001, p. 12). The Understanding Directions subtest requires an individual to listen to a set of instructions and respond to the directions by pointing at the appropriate objects in a picture; the complexity of the instructions increases as the subtest progresses. The Story Recall-Delayed subtest is an additional subtest found within the oral language curriculum area that does not contribute to a cluster score. It is administered at the end of the Standard Battery, and it measures how well an individual remembers details from the Story Recall subtest after a delay of at least thirty minutes.

In the reading curriculum, the Standard Battery derives one cluster: the Broad Reading cluster. This cluster “provides a comprehensive measure of reading achievement including reading decoding, reading speed, and the ability to comprehend connected discourse while reading” (Mather & Woodcock, 2001, p. 17). The Broad Reading cluster is composed of the Letter-Word Identification, Passage Comprehension, and Reading Fluency subtests. Letter-Word Identification measures an individual’s ability to identify letters and correctly pronounce words. The Passage Comprehension subtest initially requires an individual to identify the correct picture

accurately described by a word or phrase; as the subtest progresses, the examinee will be asked to complete a passage by identifying a correct word that would be compatible with the context of the passage. The Reading Fluency subtest requires an individual to identify if a given statement is either true or false; the statements increase in complexity as the subtest progresses, and examinees are required to complete as many items as feasible within three minutes.

The WJ III ACH Standard Battery produces two math clusters: Broad Math and Math Calculation Skills (Mather & Woodcock, 2001). The Broad Math cluster describes an individual's mathematical aptitude and is formed from three subtests: Calculation, Math Fluency, and Applied Problems. The Calculation subtest requires individuals to solve math problems; the problems cover areas such as addition, subtraction, division, and multiplication, and also include some calculus, trigonometry, geometry, and logarithmic exercises. The Math Fluency subtest requires individuals to perform simple subtraction, addition, and multiplication exercises within a three-minute time limit. The Applied Problems subtest has the examinee listen to and solve orally presented math problems. The Math Calculation Skills cluster depicts an individual's "computational skills and automaticity with basic math facts" (Mather & Woodcock, 2001, p. 18). It is derived from the Calculation and Math Fluency subtests.

The written language curriculum area is described by two clusters in the Standard Battery: Broad Written Language and Written Expression. The Broad Written Language cluster is composed of the Writing Fluency, Spelling, and Writing Samples subtests, and "provides a comprehensive measure of written language achievement including spelling of single-word responses, fluency of production, and quality of expression" (Mather & Woodcock, 2001, p. 18). The Writing Fluency subtest involves forming simple sentences based on a picture presented to the examinee, and must include three specific words. The Spelling subtest measures an

individual's accuracy in spelling orally presented words. The Writing Sample subtest measures an individual's ability to write sentences based on presented demands. The examinee's responses are graded according to their "quality of expression" (Mather & Woodcock, 2001, p. 14). The Written Expression cluster is a measure of writing fluency and accuracy and depth of expression. It is formed by the Writing Fluency and Writing Samples subtests.

The WJ III ACH Standard Battery derives various other cluster scores across a variety of subtests. These special clusters describe an individual's academic proficiency across multiple curriculum areas. The first of these, Academic Fluency is derived from the Reading Fluency, Math Fluency, and Writing Fluency subtests. The second cluster, Academic Skills, "is an aggregate measure of reading decoding, math calculation, and spelling of single-word responses proving an overall score of basic achievement skills" (Mather & Woodcock, 2001, p. 19). This cluster is comprised of the Letter-Word Identification, Calculation, and Spelling subtests. The third cluster, Academic Applications, covers an individual's ability to solve academic problems using academic skills. This cluster is derived from the Passage Comprehension, Applied Problems, and Writing Samples subtests. The final cluster, Total Achievement, is a comprehensive measure of an individual's performance across the various academic fields in the WJ III ACH Standard Battery. The Total Achievement is comprised of the Letter-Word Identification, Calculation, Reading Fluency, Math Fluency, Writing Fluency, Spelling, Applied Problems, Passage Comprehension, and Writing Samples subtests.

Psychometric Properties. The Woodcock Johnson III Tests of Achievement and Woodcock-Johnson III Tests of Cognitive Abilities were co-normed on a nationally representative sample of 8,818 individuals from over 100 communities in the United States (Schrank, McGrew, & Woodcock, 2001). The normative age range is from 2 years old to 90

years old. The sample consists of 1,143 preschool-aged subjects, 4,783 subjects from Kindergarten through the twelfth grade, 1,165 young adults including college and university students, and 1,843 non-college attending adults.

Reliability statistics for the WJ III ACH were calculated using each subject in the normative sample at their appropriate technical age level (Schrang, McGrew, & Woodcock, 2001). Split-half reliability coefficients were derived for each subtest, excluding those subtests that are timed tests and those with multiple-point scoring systems. Those excluded subtests from the WJ III ACH Standard Battery include the Reading Fluency, Math Fluency, Writing Fluency, Story Recall, Story Recall-Delayed, and Writing Samples subtests. Reliability for these subtests was calculated using Rasch analysis procedures. A summary of each subtest's reliability and standard error of measurement can be found in Table 5. Furthermore, a summary of each cluster's reliability and standard error of measurement can be found in Table 6.

Content validity of the WJ III ACH was established primarily based on Cattell-Horn-Carroll theory, but was also augmented to fit "core curricular areas and domains specified in federal legislation" (Schrang, McGrew, & Woodcock, 2001, p.15). The construct validity of the WJ III ACH was derived from a confirmatory factor-analytic model. The factors are derived from CHC theory, and include nine broad factors (Gc, Gf, Ga, Glr, Gv, Gs, Gsm, Grw, Gq), in addition to g. Factor loadings for the WJ III ACH formed clusters, which correspond to the cluster scores formed by grouping similar subtests. The WJ II ACH was measured for correlations with the Wechsler Individual Achievement Test (WIAT) (Wechsler, 1992) and the Kaufman Test of Educational Achievement (KTEA) (Kaufman & Kaufman, 1985). Correlations between the WJ III ACH and the KTEA indicate that, among the WJ II ACH cluster scores, the

WJ III and the aforementioned instruments are measuring similar academic abilities and skills (Schrank, McGrew, & Woodcock, 2001).

METHOD

Participants

Prior approval for this study was obtained from the Missouri State University Institutional Review Board on October 22, 2013 (Study # 14-0179, see Appendix A-1) and was extended on December 18, 2017 (Study # IRB-FY2018-422, see Appendix A-2). Recruitment was conducted via offering extra credit in Missouri State University classes in the Psychology Department participating with the study, as well as other volunteers among Missouri State University students. Informed consent forms (Appendix B and Appendix C) were signed at the time of testing, affirming their results to be used for the purpose of this study. Data gathered included the individual's age, gender, ethnicity, WIAT-III and WJ III ACH results, any self-reported psychological disorder, and if English was his or her first language.

Twenty-seven ($n = 27$) individuals participated in the current study. The average age was 21.41 years ($SD = 3.65$; 18-38) and consisted of 33.3% males ($n = 9$) and 66.7% females ($n = 18$). Ethnicity of the sample was 70.4% ($n = 19$) Caucasian, 7.4% ($n = 2$) Asian, 7.4% ($n = 2$) Multi-Racial, 3.7% ($n = 1$) African American, 3.7% ($n = 1$) African, 3.7% ($n = 1$) European, and 3.7% ($n = 1$) Other. All participants had completed more than twelve years of education. The average amount of years of education completed among the sample was 14.96 ($SD = 1.32$; 13-17). 88.9% ($n = 24$) of the sample spoke English as their first language. A survey of self-reported psychiatric diagnosis of the sample revealed 88.9% ($n = 24$) had no psychiatric diagnosis; 7.4% ($n = 2$) of the sample reported being diagnosed with Attention-Deficit Hyperactivity Disorder, and 3.7% ($n = 1$) of the sample reported an undisclosed psychiatric diagnosis.

Materials

Individuals were administered both the WIAT-III and the WJ III ACH-Form A-Standard Battery. Time between tests varied according to the availability of individual subjects, with time between tests ranging from immediate to three weeks. The order of test administration was based on a randomized number assigned to each subject. Both tests are individually administered, norm-referenced, comprehensive, commercial, standardized tests of achievement used to measure an individual's capabilities in the areas of reading, writing, oral language, and mathematics.

The WIAT-III is comprised of sixteen subtests, which are combined in various groupings to form eight composite scores, including a Total Achievement composite score. The WIAT-III is designed to be administered to students in grades prekindergarten through twelve, but norms are available for individuals aged four years, zero months through fifty years, eleven months. Each of the subtests are introduced orally; some items are presented orally, and some items are presented in pencil-and-paper format. Each full administration of the WIAT-III produces standard scores, age/grade equivalent scores, percentile ranks, stanines, and normal curve equivalent scores. Full administration of the WIAT-III takes between 90-180 minutes, depending on the grade level and ability of the examinee. The reliability and validity of the WIAT-III are discussed in section II of the Introduction, "Wechsler Individual Achievement Test-Third Edition (WIAT-III)."

The WJ III ACH-Form A-Standard Battery includes twelve subtests, contributing to ten cluster scores, including a Total Achievement cluster. Similar to the WIAT-III, all subtests are introduced to the examinee orally, some items are presented orally, and some items are presented via pencil and paper. The WJ III ACH also includes several timed or fluency tests. Norms for the

WJ III ACH are available for ages two through 90+. Administration of the Standard Battery of Form A of the WJ III ACH generally takes between 60 and 120 minutes, and each standard administration produces standard scores, percentile ranks, age/grade equivalent scores, stanines, and normal curve equivalent scores. The reliability and validity of the WJ III ACH are discussed in section III of the Introduction, “Woodcock-Johnson III Tests of Achievement (WJ III ACH).”

RESULTS

In order to determine if the sample used in this study differed from the normative population, a series of one sample *t*-tests was performed on each composite and subtest of the WIAT-III and each cluster and subtest of the WJ III ACH. These *t*-tests were performed by comparing the sample population with the normative population (average standard score = 100). A significant difference between the sample and the population norms was found for most composites and subtests of the WIAT-III, and for most clusters and subtests of the WJ III ACH. The sample's WIAT III scores were generally significantly higher than the normative population, and the sample's WJ III ACH scores were generally significantly lower than the normative population. The *t*-tests results, the sample means, and standard deviations are displayed in Tables 7 and 8. The smallest difference between the sample and the population on the WIAT-III was found with the Total Reading composite, while the largest difference was found with the Written Expression composite. The smallest difference between the sample and the population on the WJ III ACH was found with the Broad Written Language cluster, while the largest difference was found with the Letter-Word Identification subtest. Due to these significant differences, the participants used for this study should be considered a special population.

In order to compare the relationship between the WIAT-III and WJ III ACH similar composite/cluster scores and subtest scores; means, a paired-samples *t*-test, and within group correlations were calculated using Pearson's *r*. The composites and clusters compared were WIAT-III Total Achievement and WJ III ACH Total Achievement, WIAT-III Oral Language and WJ III ACH Oral Language STD, WIAT-III Total Reading and WJ III ACH Broad Reading, WIAT-III Written Expression and WJ III ACH Broad Written Language, WIAT-III Mathematics

and WJ III ACH Broad Math, WIAT-III Math Fluency and WJ III ACH Math Calculation Skills, and WIAT-III Math Fluency and WJ III ACH Math Fluency subtest. The comparison made between the WIAT-III Math Fluency composite and the WJ III ACH Math Fluency subtest was examined due to their high structural and administrative similarities. The subtests compared were WIAT-III Word Reading and WJ III ACH Letter-Word Identification, WIAT-III Reading Comprehension and WJ III ACH Passage Comprehension, WIAT-III Sentence Composition and WJ III ACH Writing Samples, WIAT-III Spelling and WJ III ACH Spelling, WIAT-III Math Problem Solving and WJ III ACH Applied Problems, and WIAT-III Numerical Operations and WJ III ACH Calculation.

Overall, the WIAT-III and WJ III ACH are mostly significantly different from each other. Only the differences between the Reading Comprehension and Passage Comprehension means were not significantly different. In each comparison, the WIAT-III scores were higher than the WJ III ACH scores. Scatterplots of the results of each comparison may be found in Appendix D. A summary of results of the paired-sample *t*-tests may be found in Tables 9 and 10.

Correlation coefficients for each of the comparisons are reported in Tables 11 and 12. The comparison of the WIAT-III Oral Language composite and the WJ III ACH Oral Language STD cluster was $r(25) = 0.702, p < 0.001$, of the WIAT-III Total Reading Composite and WJ III ACH Broad Reading composite was $r(25) = 0.524, p = 0.005$, of the WIAT-III Written Expression composite and WJ III ACH Broad Written language cluster was $r(25) = 0.203, p = 0.311$, of the WIAT-III Mathematics composite and the WJ III ACH Broad Math cluster was $r(25) = 0.740, p < 0.001$, of the WIAT-III Math Fluency composite and the WJ III ACH Math Fluency subtest was $r(25) = 0.764, p < 0.001$, of the WIAT-III Math Fluency composite and the WJ III Math Calculation Skills cluster was $r(25) = 0.620, p = 0.001$, and of the WIAT-III Total

Achievement composite and the WJ III ACH Total Achievement Cluster was $r(25) = 0.421, p = 0.29$. The comparison of the WIAT-III Word Reading subtest and the WJ III ACH was $r(25) = 0.443, p = 0.021$, of the WIAT-III Reading Comprehension subtest and the WJ III ACH Passage Comprehension subtest was $r(25) = 0.201, p = 0.315$, of the WIAT-III Sentence Composition subtest and the WJ III ACH Writing Samples subtest was $r(25) = 0.039, p = 0.847$, of the WIAT-III Spelling subtest and the WJ III ACH Spelling subtest was $r(25) = 0.768, p < 0.001$, of the WIAT-III Math Problem Solving subtest and the WJ III ACH Applied Problems subtest was $r(25) = 0.520, p = 0.005$, and of the WIAT-III Numerical Operations subtest and the WJ III ACH Calculation subtest was $r(25) = 0.737, p < 0.001$.

DISCUSSION

The purpose of this study was to determine the convergent validity of the Wechsler Individual Achievement Test-Third Edition (WIAT-III) and the Woodcock-Johnson III Tests of Achievement, Form A, Standard Battery (WJ III ACH). Both are commercially produced tests, designed to measure academic achievement in a variety of areas. Also, both assessments are utilized in clinical, research, and educational settings. The hypothesis suggesting that these assessments have high convergent validity was supported, with statistically significant correlations found for most composites/clusters and subtests that were compared. However, significant differences among the means of composites/clusters and subtests between the two assessments suggest that the assessments are measuring areas of academic achievement quite differently. The sample was also analyzed to determine the ability of the results to be generalized to the population. The sample used in this study was concluded to be a special population. This finding was justified by the research sample having significantly higher standard scores on the WIAT-III composites and subtests than the general population, and the research sample having significantly lower standard scores on the WJ III ACH clusters and subtests than the general population. Therefore, generalizability of the results of this study is somewhat limited.

Limitations

There were some limitations in this analysis that should be addressed in future research. First, a more robust sample size would be helpful in determining if the results gathered were valid and comparable to the normative sample. A larger sample size would also allow for more powerful statistical analyses. Second, the sample was primarily drawn from undergraduate

students in psychology. In order to more broadly study the differences between the tests with respect to means comparisons, further research should include a more diverse sample from different age groups and grade levels. Further research with a larger, more diverse sample would greatly improve the generalizability of the findings.

Due to practical limitations, there were some factors which could not be accounted for. For example, there were multiple examiners who conducted the WIAT-III and WJ III ACH assessments for these participants. Although there are very specific administration instructions, the examiners' various administration styles may have had an effect on the subjects' results. Along with multiple examiners, the subjects were tested in multiple environments. All of the testing occurred within a set of testing rooms in the Missouri State University Learning Diagnostic Clinic; however, it is possible that the different environments had an effect on testing. These effects are likely minor, but they could be easily avoided in future research.

Conclusion

The Wechsler Individual Achievement Test-Third Edition (WIAT-III) and the Woodcock-Johnson III Tests of Achievement (WJ III ACH) are two standardized commercial assessments of academic achievement utilized in clinical, educational, and research settings. Both instruments purport to measure academic achievement in a variety of curricular areas. Both produce subtest and composite or cluster scores in the form of standard scores, percentile ranks, age/grade equivalent scores, stanines, and normal curve equivalent scores. In the current study, similar subtest and composite or cluster standard scores were correlated to determine the degree of convergent validity between the two tests. The sample consisted of mostly undergraduate psychology students at Missouri State University. All participants in this study were adults.

The results of this study could have implications for the standardized assessment of academic achievement. While the two assessments demonstrate high correlation coefficients between the matched composites/clusters and subtests, means comparison results show a marked difference in scores. In general, the scores on the WIAT-III are higher than the scores of the WJ III ACH. Although additional research is needed to determine the validity and reliability of these results, the findings of this study suggest that a college aged individual will probably score higher on the WIAT-III than the WJ III ACH. If true, this finding would have profound implications for clinicians and educators. For example, if a student is being evaluated for a learning disability, and the clinician is basing their diagnosis on a significant difference between ability (such as IQ) and achievement, then administering the WJ III ACH would theoretically provide lower standard scores, which would make a learning disability diagnosis more likely. Additionally, if these results are valid and reliable, educators planning interventions based off the results of the WIAT-III may miss relevant areas that the WJ III ACH would provide.

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TABLES

Table 1. Average Age-Based Reliability Coefficients and Standard Errors of Measurement for WIAT-III Subtests

Subtest	r_{xx}	SEM
Listening Comprehension	.83	6.25
Early Reading Skills	.90	4.94
Reading Comprehension	.86	5.74
Math Problem Solving	.91	4.43
Alphabet Writing Fluency	.69	8.35
Sentence Composition	.87	5.36
Word Reading	.97	2.56
Essay Composition	.88	5.24
Pseudoword Decoding	.97	2.67
Numerical Operations	.93	3.99
Oral Expression	.87	5.50
Oral Reading Fluency	.93	3.92
Spelling	.95	3.38
Math Fluency – Addition	.84	5.91
Math Fluency – Subtraction	.89	5.11
Math Fluency – Multiplication	.90	4.83

(Psychological Corporation, 2009b)

Table 2. Average Age-Based Reliability Coefficients and Standard Errors of Measurement for WIAT-III Composites

Composite	r_{xx}	SEM
Oral Language	.91	4.64
Total Reading	.97	2.40
Basic Reading	.98	1.98
Reading Comprehension and Fluency	.92	4.14
Written Expression	.94	3.88
Mathematics	.96	3.25
Math Fluency	.94	3.63
Total Achievement	.98	2.31

(Psychological Corporation, 2009b)

Table 3. Correlations Between Common WIAT-III and WIAT-II Subtests

Subtest	Correlation Coefficient
Listening Comprehension	.64
Reading Comprehension	.69
Word Reading	.85
Pseudoword Decoding	.84
Numerical Operations	.81
Oral Expression	.62
Spelling	.86

(Psychological Corporation, 2009b)

Table 4. Correlations Between Common WIAT-III and WIAT-II Composites

Composite	Correlation Coefficient
Oral Language	.76
Total Reading	.89
Written Expression	.83
Mathematics	.91
Total Achievement	.93

(Psychological Corporation, 2009b)

Table 5. Median Reliability Coefficients and Standard Error of Measurement for WJ III ACH Subtests by Age

Subtest	R ₁₁	SEM
Letter-Word Identification	0.94	3.81
Reading Fluency	0.90	4.79
Story Recall	0.87	5.44
Understanding Directions	0.83	6.20
Calculation	0.86	5.65
Math Fluency	0.90	4.83
Spelling	0.90	4.80
Writing Fluency	0.88	5.15
Passage Comprehension	0.88	5.12
Applied Problems	0.93	4.08
Writing Samples	0.87	5.40
Story Recall-Delayed	0.81	6.62

Schrank, McGrew, & Woodcock, 2001

Table 6. Median Reliability Coefficients and Standard Error of Measurement for WJ III ACH Clusters by Age

Cluster	r_{cc}	SEM (SS)
Total Achievement	0.98	2.36
Oral Language-Standard	0.87	5.41
Broad Reading	0.94	3.67
Broad Math	0.95	3.35
Broad Written Language	0.94	3.67
Academic Skills	0.96	3.00
Academic Fluency	0.93	3.97
Academic Applications	0.95	3.35

Schrank, McGrew, & Woodcock, 2001

Table 7. Sample Statistics on the Included Composites and Subtests of the WIAT-III

Composite	M	SD	n_p^1	t	p
Oral Language	102.63	12.032	27	1.136	.266
Total Reading	100.41	9.649	27	.219	.828
Written Expression	112.04	7.235	27	8.645	< .001
Mathematics	108.52	10.653	27	4.155	< .001
Math Fluency	103.37	14.465	27	1.211	.237
Total Achievement	105.74	8.725	27	3.419	.002
Subtest	M	SD	n_p^1	t	p
Word Reading	103.93	8.362	27	2.440	.022
Reading Comprehension	102.52	12.154	27	1.077	.291
Sentence Composition	112.26	7.935	27	8.028	< .001
Spelling	108.93	10.411	27	4.455	< .001
Math Problem Solving	107.74	9.650	27	4.168	< .001
Numerical Operations	107.52	11.885	27	3.287	.003

¹Number of matched pairs included in calculation.

Table 8. Sample Statistics on the Included Clusters and Subtests of the WJ III ACH

Cluster	M	SD	n _p ¹	<i>t</i>	<i>p</i>
Oral Language STD	93.48	8.573	27	-3.951	.001
Broad Reading	94.30	10.317	27	-2.873	.008
Broad Math	93.67	15.407	27	-2.136	.042
Math Calculation Skills	96.37	17.990	27	-1.048	.304
Broad Written Language	99.30	10.329	27	-0.354	.726
Total Achievement	95.11	11.544	27	-2.201	.037
Subtest	M	SD	n _p ¹	<i>t</i>	<i>p</i>
Letter-Word Identification	90.63	11.784	27	-4.132	< .001
Passage Comprehension	97.41	9.830	27	-1.370	.182
Writing Samples	94.70	11.929	27	-2.307	.029
Spelling	98.22	11.771	27	-0.785	.440
Applied Problems	89.07	19.456	27	-2.918	.007
Calculation	93.81	22.587	27	-1.423	.167
Math Fluency	96.70	13.770	27	-1.244	.225

¹Number of matched pairs included in calculation

Table 9. Paired-Sample t-test between Means of Similar WIAT-III Composites and WJ III ACH Clusters

WIAT-III Composite					
WJ III ACH Cluster	M	SD	N _p ¹	<i>t</i>	<i>p</i>
Oral Language	102.63	12.032	27	5.544	<i>p</i> < .01
Oral Language STD	93.48	15.326	--	----	
Total Reading	100.41	9.649	27	3.255	<i>p</i> < .01
Broad Reading	94.30	10.317	--	----	
Written Expression	112.04	7.235	27	5.835	<i>p</i> < .01
Broad Written Language	99.30	10.329	--	----	
Mathematics	108.52	10.653	27	7.427	<i>p</i> < .01
Broad Math	93.67	15.407	--	----	
Math Fluency	103.37	14.465	27	3.563	<i>p</i> < .01
Math Fluency (subtest)	96.70	13.770	--	----	
Math Fluency	103.37	14.465	27	2.506	<i>p</i> = .019
Math Calculation Skills	96.37	17.990	--	----	
Total Achievement	105.74	8.725	27	4.948	<i>p</i> < .01
Total Achievement	95.11	11.544	--	----	

¹Number of matched pairs included in calculation

Table 10. Paired-Sample t-test between Means of Similar WIAT-III Subtests and WJ III ACH Subtests

WIAT-III Subtest					
WJ III ACH Subtest	M	SD	n _p ¹	<i>t</i>	<i>p</i>
Word Reading	103.93	8.362	27	6.269	<i>p</i> < .01
Letter-Word Identification	90.63	11.784	--	----	
Reading Comprehension	102.52	12.154	27	1.895	<i>p</i> = .069
Passage Comprehension	97.41	9.830	--	----	
Sentence Composition	112.26	7.935	27	6.485	<i>p</i> < .01
Writing Samples	94.70	11.929	--	----	
Spelling	108.93	10.411	27	7.256	<i>p</i> < .01
Spelling	98.22	11.771	--	----	
Math Problem Solving	107.74	9.650	27	5.834	<i>p</i> < .01
Applied Problems	89.07	19.456	--	----	
Numerical Operations	107.52	11.885	27	4.454	<i>p</i> < .01
Calculation	93.81	22.587	--	----	

¹Number of matched pairs included in calculation

Table 11. Correlations between Similar WIAT-III Composites and WJ III ACH Clusters

WIAT-III Composite			
WJ II ACH Cluster	<i>r</i>	<i>p</i>	n
Oral Language			
Oral Language STD	.702**	< 0.001	25
Total Reading			
Broad Reading	.524**	0.005	25
Written Expression			
Broad Written Language	.203	0.311	25
Mathematics			
Broad Math	.740**	< 0.001	25
Math Fluency			
Math Fluency (subtest)	.764**	< 0.001	25
Math Fluency			
Math Calculation Skills	.620**	0.001	25
Total Achievement			
Total Achievement	.421	0.29	25

* $p < .05$

** $p < .01$

Table 12. Correlations between Similar WIAT-III Subtests and WJ III ACH Subtests

WIAT-III Subtest			
WJ III ACH Subtest	<i>r</i>	<i>p</i>	n
Word Reading			
Letter-Word Identification	.443*	0.021	25
Reading Comprehension			
Passage Comprehension	.201	0.315	25
Sentence Composition			
Writing Samples	.039	0.847	25
Spelling			
Spelling	.768**	< 0.001	25
Math Problem Solving			
Applied Problems	.520**	0.005	25
Numerical Operations			
Calculation	.737**	< 0.001	25

* $p < .05$

** $p < .01$

APPENDICES

Appendix A-1. MSU Institutional Review Board Approval October 22, 2013

Missouri State University		Institutional Review Board	
Missouri State University Human Subjects Review		Application Cover Sheet	
(Revised 09/03/08)			
For OSRP Use Only	Date Submitted:	Date Received: <u>OCT 18 2013</u>	Application #: <u>14-0179</u>
A. INVESTIGATOR INFORMATION (Additional names and information on training are to be provided on an attached sheet.)			
Principal Investigator: <u>Steve Capps</u>		College: <u>CHHS</u>	Department: <u>Psychology</u>
Human Subjects Training has been completed:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Email: <u>stevecapps@missouristate.edu</u>	
Project involves Protected Health Information:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	If yes, has HIPAA training been completed?:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Co-Worker: <u>Trent Walters</u>		College: <u>CHHS</u>	Department: <u>Psychology</u>
Human Subjects Training has been completed:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Email: <u>walters871@missouristate.edu</u>	
Project involves Protected Health Information:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	If yes, has HIPAA training been completed?:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Co-Worker:		College:	Department:
Human Subjects Training has been completed:	<input type="checkbox"/> yes <input type="checkbox"/> no	Email:	
Project involves Protected Health Information:	<input type="checkbox"/> yes <input type="checkbox"/> no	If yes, has HIPAA training been completed?:	<input type="checkbox"/> yes <input type="checkbox"/> no
Co-Worker:		College:	Department:
Human Subjects Training has been completed:	<input type="checkbox"/> yes <input type="checkbox"/> no	Email:	
Project involves Protected Health Information:	<input type="checkbox"/> yes <input type="checkbox"/> no	If yes, has HIPAA training been completed?:	<input type="checkbox"/> yes <input type="checkbox"/> no
Co-Worker:		College:	Department:
Human Subjects Training has been completed:	<input type="checkbox"/> yes <input type="checkbox"/> no	Email:	
Project involves Protected Health Information:	<input type="checkbox"/> yes <input type="checkbox"/> no	If yes, has HIPAA training been completed?:	<input type="checkbox"/> yes <input type="checkbox"/> no
B. PROJECT INFORMATION			
Project Title: <u>Examining the Convergent Validity of the Wechsler Individual Achievement Test-Third Edition and the Woodcock-Johnson III Tests of Achievement - Form A - Standard</u>			
Project Type: <input checked="" type="checkbox"/> New Project <input type="checkbox"/> Renewal or Continuation <input type="checkbox"/> Resubmission			
<input type="checkbox"/> Change in Procedure for Previously Approved Project			
Proposed Project Dates (up to one year):		From: <u>10/4/2013</u>	To: <u>07/31/2014</u> Battery
Funding Agency or Research Sponsor:			
C. IRB RECOMMENDATION			
Recommendation of College IRB Representative:			
<input type="checkbox"/> Category I, Exempt, Sub-part A, Section 45.101 45 CFR 46, exempt category			
<input checked="" type="checkbox"/> Category II, Expedited Approval, Sub-part A, Section 46.110, expedited category <u>7</u>			
<input type="checkbox"/> Category III, Full Committee Review			
IRB College Representative: <u>Russell Capps</u>		Date: <u>10-18-13</u>	
Action of the IRB Chairman:		Results of Full IRB Review:	
<input type="checkbox"/> Approved as Exempt		<input type="checkbox"/> Approved	
<input checked="" type="checkbox"/> Expedited Approval		<input type="checkbox"/> Deferred (see attached comments)	
<input type="checkbox"/> Recommended for Full Review		<input type="checkbox"/> Disapproved (see attached comments)	
Chairman of IRB: <u>A. Bulger, Ph.D.</u>		Date: <u>10/22/13</u>	

Appendix A-2. MSU Institutional Review Board Approval December 18, 2017

To:

Steven Capps

Learning Diagnostic Clinic

William Deal

RE: Notice of IRB Approval

Submission Type: Initial

Study #: IRB-FY2018-422

Study Title: Examining the Convergent Validity of the Wechsler Individual Achievement Test - Third Edition and the Woodcock-Johnson III Tests of Achievement - Form A - Standard Battery

Decision: Approved

Approval Date: Dec 18, 2017

Expiration Date: Dec 16, 2018

This submission has been approved by the Missouri State University Institutional Review Board (IRB) for the period indicated.

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB.

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

Researchers Associated with this Project:

PI: Steven Capps

Co-PI: William Deal

Primary Contact: Trent Walters

Other Investigators: Trent Walters

Appendix B. Informed Consent Form for a Current Student of Missouri State University

Missouri State University

Informed Consent Form

Title: Examining the Convergent Validity of the Wechsler Individual Achievement Test-Third Edition and the Woodcock-Johnson III Tests of Achievement-Form A-Standard Battery

Primary Investigator:

Steven Capps, Ph.D.
Department of Psychology
Missouri State University
Springfield, MO 65897
417.836.6631

StevenCapps@missouristate.edu

Co-Investigators:

Trent Walters
Department of Psychology
Missouri State University
Springfield, MO 65897
417.836.6631

Walters871@live.missouristate.edu

Description:

We will be investigating the relationship between a number of variables and subsequent overall functioning. You will be asked to complete a number of instruments assessing academic functioning in a variety of areas, including reading, writing, oral expression, and mathematics. While the instruments are commonly utilized to evaluate these abilities in clinical settings, for this study you will not receive any feedback regarding your performance.

Risks and Benefits:

You will be asked to complete forms that may cause you to become bored or frustrated. We do not think there are any other risks. Your involvement may help determine appropriate instrument selection for assessing academic performance.

Cost and Payments:

It will take you approximately 150-180 minutes to complete the instruments. Other than your time, it does not cost anything to help with this study. You will receive course credit for participation in this study.

Confidentiality:

The student will ask the following information: date of birth, gender, highest level of education, any current psychiatric diagnoses, and ethnicity. You may withhold any of the information except date of birth. Furthermore, your information will be coded using identification numbers to protect your identity.

Right to Withdraw:

If at any time, you wish to stop and rest, or you wish to stop and not complete the testing, you may do so. Simply tell the investigator. If you have other concerns, please contact the primary investigator, Dr. Steven Capps, at 417-836-6631. Do you have any questions?

IRB Approval:

The Missouri State University's Institutional Review Board (IRB) has reviewed this study. The IRB thinks this study meets the requirements of federal law and University policies. If you have any questions or problems about this study, please contact the chair of the IRB, Dr. Joe Hulgus at 417.836.6522, or the Department of Psychology IRB representative, Dr. Russell Carney, at 417.836.5833.

Protected Health Information:

Protected health information is any personal health information through which you can be identified. The data collected in this study includes scores on multiple instruments assessing academic performance. The information collected for this study will be kept until the study is complete. While this study is ongoing you may not have access to the research information, but you may request it after the research is completed.

Statement of Consent:

I have read the above information. I have been given a copy of this form. I have had an opportunity to ask questions, and I have received answers. I consent to the above described research project. I certify that I have the legal authority to consent to this on behalf of my (son) (daughter) (ward).

Parent/Guardian Signature: _____ Date: _____

Participant Assent: _____ Date: _____

Investigator Signature: _____ Date: _____

Appendix C. Informed Consent Form for a Non-Missouri State University Participant

Missouri State University

Informed Consent Form

Title: Examining the Convergent Validity of the Wechsler Individual Achievement Test-Third Edition and the Woodcock-Johnson III Tests of Achievement-Form A-Standard Battery

Primary Investigator:

Steven Capps, Ph.D.
Department of Psychology
Missouri State University
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417.836.6631

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Co-Investigators:

Trent Walters
Department of Psychology
Missouri State University
Springfield, MO 65897
417.836.6631

Walters871@live.missouristate.edu

Description:

We will be investigating the relationship between a number of variables and subsequent overall functioning. You will be asked to complete a number of instruments assessing academic functioning in a variety of areas, including reading, writing, oral expression, and mathematics. While the instruments are commonly utilized to evaluate these abilities in clinical settings, for this study you will not receive any feedback regarding your performance.

Risks and Benefits:

You will be asked to complete forms that may cause you to become bored or frustrated. We do not think there are any other risks. Your involvement may help determine appropriate instrument selection for assessing academic performance.

Cost and Payments:

It will take you approximately 150-180 minutes to complete the instruments. Other than your time, it does not cost anything to help with this study. You will receive a \$15 dollar Wal-Mart gift card for participation in this study.

Confidentiality:

The student will ask the following information: date of birth, gender, highest level of education, any current psychiatric diagnoses, and ethnicity. You may withhold any of the information except date of birth. Furthermore, your information will be coded using identification numbers to protect your identity.

Right to Withdraw:

If at any time, you wish to stop and rest, or you wish to stop and not complete the testing, you may do so. Simply tell the investigator. If you have other concerns, please contact the primary investigator, Dr. Steven Capps, at 417-836-6631. Do you have any questions?

IRB Approval:

The Missouri State University's Institutional Review Board (IRB) has reviewed this study. The IRB thinks this study meets the requirements of federal law and University policies. If you have any questions or problems about this study, please contact the chair of the IRB, Dr. Joe Hulgus at 417.836.6522, or the Department of Psychology IRB representative, Dr. Russell Carney, at 417.836.5833.

Protected Health Information:

Protected health information is any personal health information through which you can be identified. The data collected in this study includes scores on multiple instruments assessing academic performance. The information collected for this study will be kept until the study is complete. While this study is ongoing you may not have access to the research information, but you may request it after the research is completed.

Statement of Consent:

I have read the above information. I have been given a copy of this form. I have had an opportunity to ask questions, and I have received answers. I consent to the above described research project. I certify that I have the legal authority to consent to this on behalf of my (son) (daughter) (ward).

Parent/Guardian Signature: _____ Date: _____

Participant Assent: _____ Date: _____

Investigator Signature: _____ Date: _____

Appendix D. Scatterplots of Means between each Composite-Cluster and Subtest-Subtest Comparison













