California Association of School Psychologists

Equitable Assessment of Gifted and 2E Students Using the Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative

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NaglieriGiftedTests.com & Jacknaglieri.com

Naglieri Verbal Nonverbal Quantitative General Ability Tests

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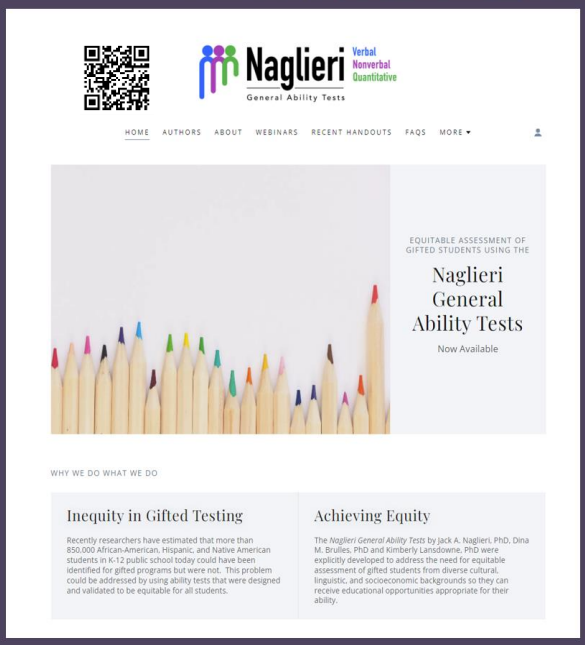
FOR MORE INFORMATION PLEASE GO TO MY WEB PAGES



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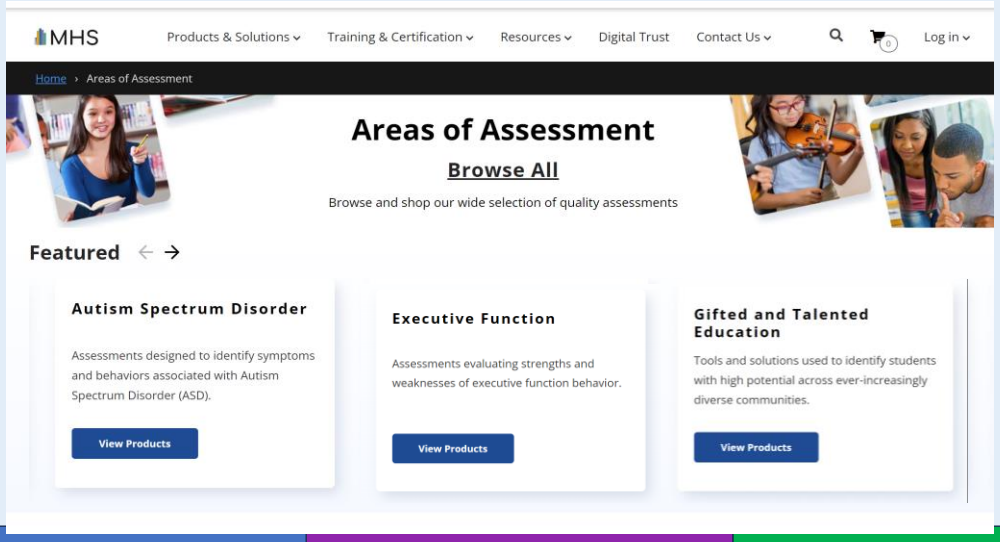

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1. Gifted or Talented?
2. Identification Issues
3. What solutions did we create?
4.What about Twice Exceptional gifted students?

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One Definition of Gifted & Talented

- "Giftedness designates the possession and use of untrained and spontaneously expressed natural abilities *(called aptitudes or gifts)*, in at least one ability domain *(e.g. intellectual, creative, socio-affective, perceptual/motor, and 'others')…"*
- "By contrast, 'talent' designates the superior mastery of systematically developed abilities *(or skills)* and knowledge in at least one field of human activity."

Francois Gagné

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Clarification of Terms

Gifted ✣ Very Smart

Talented ✣ Very Accomplished

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Profiles of Gifted Learners

- Creatively gifted people
- Gifted Perfectionists
- Highly and profoundly gifted
- Culturally & linguistically diverse gifted students
- Twice-exceptional gifted students
- Non-productive gifted students
- High ability / high achieving students

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1. Gifted or Talented?
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Traditional IQ and Achievement Tests

- Working as a school psychologist in 1975 I noticed that items on the WISC we were VERY similar to parts of the achievement tests
  - The *Peabody Individual Achievement Test* (1970) had a General Information and Arithmetic subtests JUST LIKE THE WISC!
  - THAT DID NOT MAKE SENSE
  - In 1977 → UGA for Ph.D. With Alan Kaufman who said VIQ=achievement

1975 Charles Champagne Elementary, Bethpage, NY

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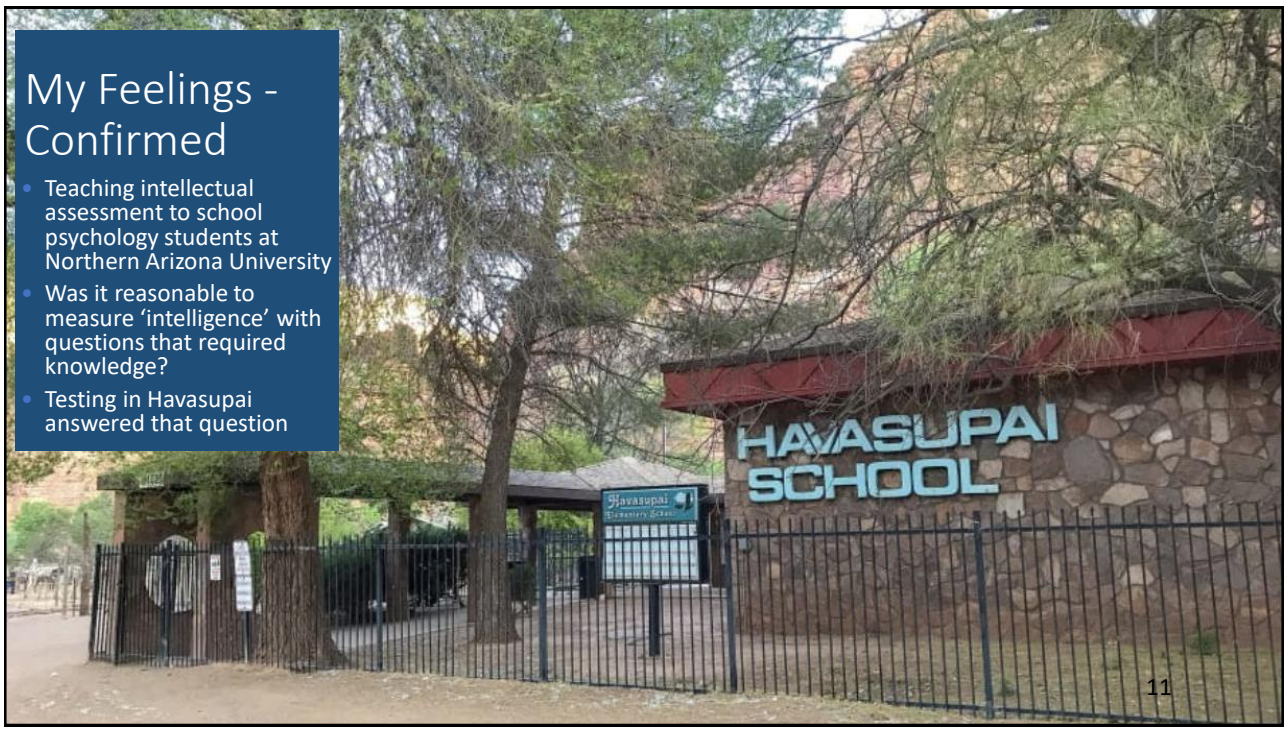
My Feelings - Confirmed

- Teaching intellectual assessment to school psychology students at Northern Arizona University
- Was it reasonable to measure 'intelligence' with questions that required knowledge?
- Testing in Havasupai answered that question



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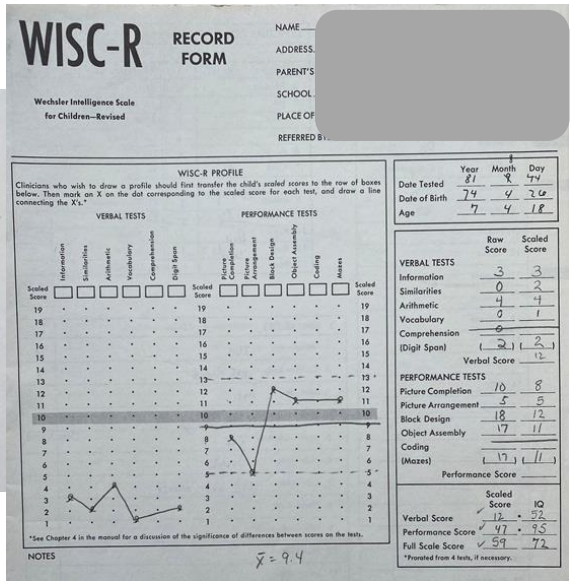
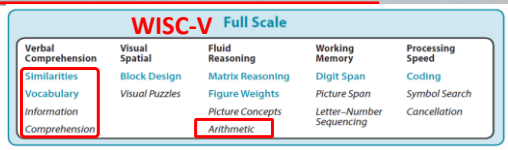
1981

Test Results and Interpretations:

On the WISC-R, Amanda earned a Performance IQ of 95±7 which falls in the average range of intelligence and at the 37th percentile rank in comparison to the children her age in the standardization sample. In contrast to this score of average non-verbal intelligence was her Verbal IQ of 52±7. This score is quite low and indicates that her level of facility with the English language falls at about the 1st percentile rank. This score can NOT be considered an estimate of verbal intelligence because Amanda speaks mostly Supai and little English. Due to the large difference between these scores, no Full Scale IQ was computed.

Within the WISC-R a clear pattern emerged: Amanda performed well on tasks that required little or no English language comprehension or expression, and poorly on all tasks which did require these linguistic skills. In fact, even if a task was visual and non-verbal, but required English language comprehension of instructions, she performed more poorly.





Naglieri, J. A. (1982). Does the WISC-R measure verbal intelligence for non-English speaking children? *Psychology in the Schools, 19*, 478-479.

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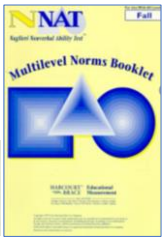
Naglieri's Nonverbal Tests: 1985 to Present

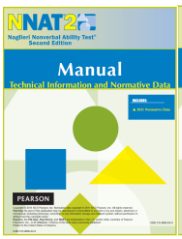
- **Research on Six Versions of the Naglieri Nonverbal Tests**

MAT Short and Expanded Forms 1985

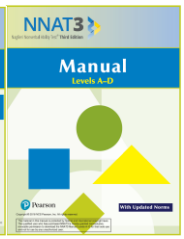


Naglieri Nonverbal Ability Test 1997

NNAT –Individual, 2003



NNAT -2 2008



NNAT3 2016

Each of these versions of the NNAT showed similar scores by RACE, ETHNICITY, & SEX and had strong correlation with achievement

This research convinced me that measuring intelligence using test questions that measured how well a student can think was a valid and equitable way to measure general intelligence 'g'.

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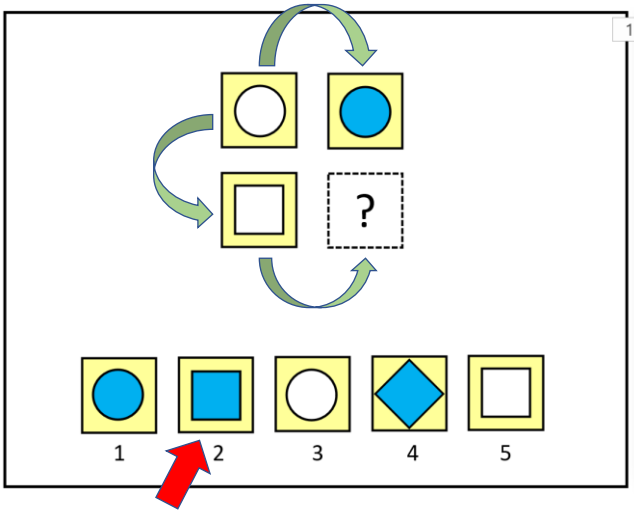
Tests that Measure Thinking or Knowing?



Girl is woman as boy is to man ?

3 is to 6 as 5 is to 10 ?

C^7 is to F as E^7 is to A ?

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How to Evaluate Thinking vs Knowing

What does the examinee have to know to complete a task?

- This is dependent on *instruction*

How does the student have to think to complete a task?

- This is dependent **seeing how ideas or things are related to one another** and some tasks just demand remembering

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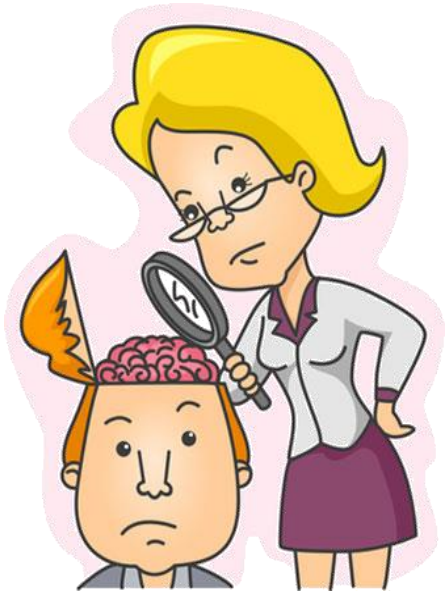
Why do we measure intelligence the way we do?



The History of IQ tests

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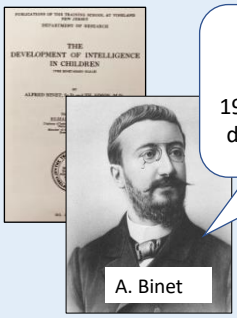
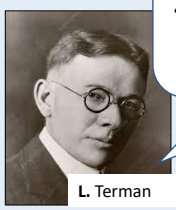
Binet→ Stanford-Binet → Army Mental Tests → WISC, CogAT, Olsat



A. Binet

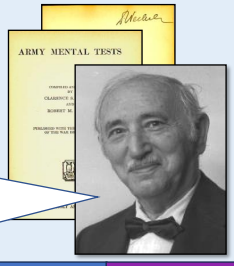
When working on the 1911 scale, Binet removed items from 1908 scale because 'they depended too much on school learning'



L. Terman

Terman added items dependent upon school learning in the 1916 Stanford-Binet because he believed 'intelligence at the verbal and abstract levels is the highest form of mental ability'.

Arthur Otis (Terman's student) was instrumental in the development of the U.S. Army Alpha (Verbal & Quantitative) and Beta (Nonverbal) and the Otis-Lennon Ability Test



Wechsler based his intelligence test on the U.S. Army Mental Tests (Verbal, Quantitative & Nonverbal)

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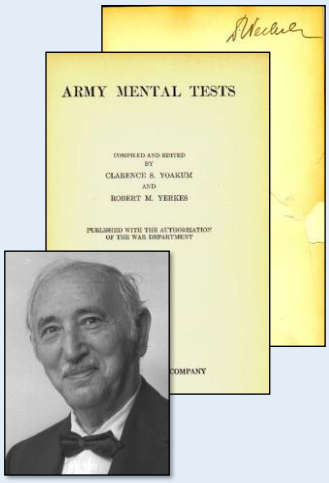
Alpha & Beta → Wechsler



- **Army Alpha**
  - Synonym- Antonym
  - Disarranged Sentences
  - Number Series
  - Arithmetic Problems
  - Analogies
  - Information

- **Army Beta**
  - Maze
  - Cube Imitation
  - Cube Construction
  - Digit Symbol
  - Pictorial Completion
  - Geometrical Construction

Verbal & Quantitative IQ (Knowledge)

Nonverbal IQ (Thinking)

WISC, WJ CogAT & Otis-Lennon

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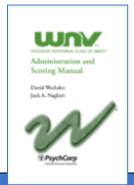
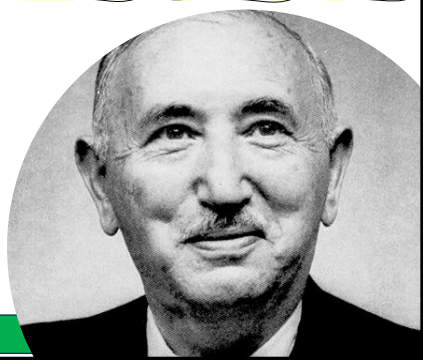
Wechsler's View of General ability

- Wechsler "believed that his Verbal and Performance Scales represented different ways to access ***g* (general ability)"**, but **he never believed** [in **verbal and] nonverbal intelligence** as being separate from g. Rather he saw the **Performance Scale as the most sensible way** to measure the general intelligence of people with … limited proficiency in English. (Kaufman, 2008)



"The aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment (1939)"



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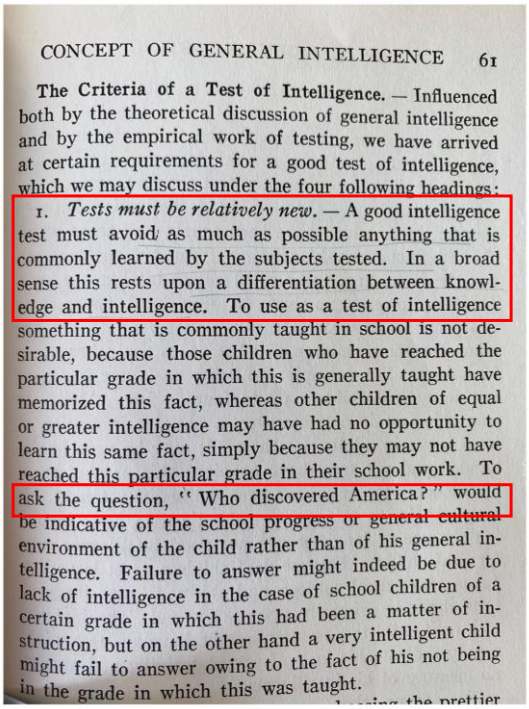


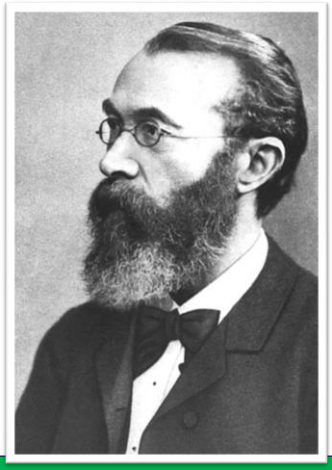
CONCEPT OF GENERAL INTELLIGENCE 61

The Criteria of a Test of Intelligence. — Influenced both by the theoretical discussion of general intelligence and by the empirical work of testing, we have arrived at certain requirements for a good test of intelligence, which we may discuss under the four following headings:

1. *Tests must be relatively new.* — A good intelligence test must avoid as much as possible anything that is commonly learned by the subjects tested. In a broad sense this rests upon a differentiation between knowledge and intelligence. To use as a test of intelligence something that is commonly taught in school is not desirable, because those children who have reached the particular grade in which this is generally taught have memorized this fact, whereas other children of equal or greater intelligence may have had no opportunity to learn this same fact, simply because they may not have reached this particular grade in their school work. To ask the question, "Who discovered America?" would be indicative of the school progress or general cultural environment of the child rather than of his general intelligence. Failure to answer might indeed be due to lack of intelligence in the case of school children of a certain grade in which this had been a matter of instruction, but on the other hand a very intelligent child might fail to answer owing to the fact of his not being in the grade in which this was taught.

Pintner
(Intelligence Testing, 1923)

- This is a social justice issue for those from disadvantaged communities and those with limited education



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Woodcock-Johnson Cognitive & Achievement Tests (CHC)

Very Similar Items on "Different" Tests

Cognitive: Oral Vocabulary #1 subtest has a question like this: Tell me another work for hot. Correct: Warm	Cognitive: Test #17B Reading Vocabulary-Antonyms subtest has a question like this: Tell me the opposite of up Correct: down
Achievement: Reading Vocabulary subtest #17 has a question like this: Tell me another work for Warm. Correct: Hot	Achievement Test #1C Verbal Comprehension-Antonyms has a question like this: Tell me the opposite of down. Correct: up

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Knowledge is Included in "Ability" Tests

Stanford-Binet-5	WISC-V	WJ-IV	KABC-II	OLSAT	CogAT
• Verbal • Knowledge • Quantitative Reasoning • Vocabulary • Verbal Analogies	• Verbal Comprehension Vocabulary, Similarities, Information & Comprehension • Fluid Reasoning Figure Weights, Arithmetic	• Comprehension Knowledge: Vocabulary & General Information • Fluid Reasoning: Number Series & Concept Formation • Auditory Processing: Phonological Processing	• Knowledge / GC • Riddles, • Expressive Vocabulary, • Verbal Knowledge	• Verbal • Following directions • Verbal Reasoning • Quantitative • Verbal Arithmetic Reasoning	• Verbal Scale • Analogies • Sentence Completion • Verbal Classification • Quantitative • 45 pages of oral instructions

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What is the Practical Impact of intelligence tests that are confounded by knowledge?

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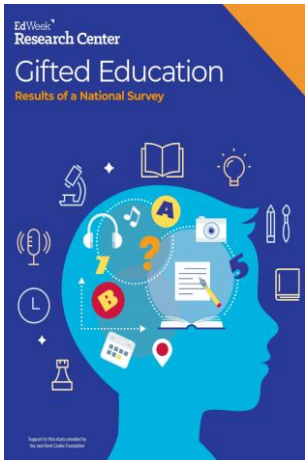
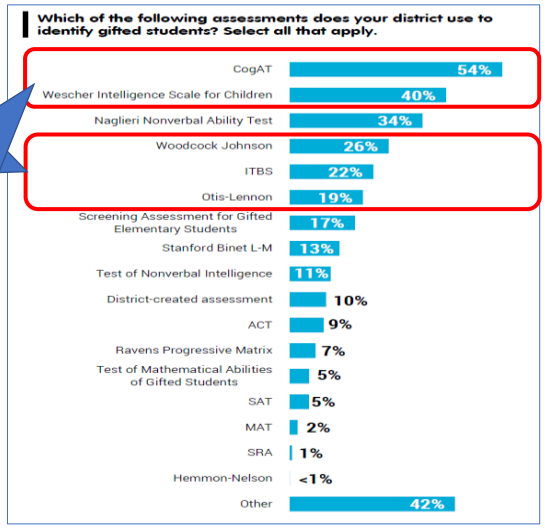
National Survey of Gifted Education



These tests have verbal and quantitative questions and lengthy verbal directions



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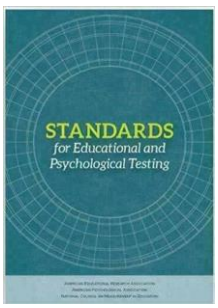
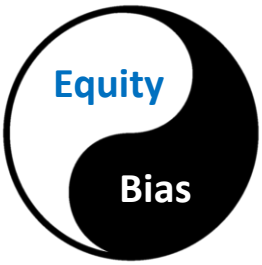
Test Bias vs Test Equity

According to the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 2014) Psychometric TEST BIAS and EQUITY are two different ways of measuring test fairness.



- … **if a person has had limited opportunities to learn the content in a test of intelligence, *that test may be considered unfair*** (because it penalizes students for not knowing the answers) **even if there is no evidence of psychometric test bias.**
- Evidence of EQUITY is examined by test content and mean score differences



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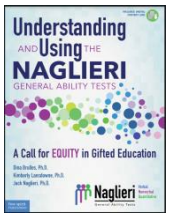
Race and Ethnic Differences for *Traditional* and *Second-Generation* Intelligence Tests



	By Race	By Ethnicity
TRADITIONAL Tests that require knowledge	**9.4**	**6.4**
Otis-Lennon School Ability Test (district wide)	13.6	-
Stanford-Binet IV (normative sample)	12.6	-
CogAT7 Nonverbal	11.8	7.6
WISC-V (normative sample)	11.6	-
WJ- III (normative sample)	10.9	10.7
K-ABC II Fluid-Crystallized Index	9.4	9.8
WISC-V (statistical controls normative sample)	8.7	5.4
K-ABC II Mental Processing Index	8.1	8.2
CogAT-Total (V, Q & NV)	7.0	4.5
CogAT7 - Verbal	6.6	5.3
CogAT- Nonverbal	6.4	2.9
CogAT7-Quantitative	5.6	3.6
SECOND GENERATION Tests that require minimal knowledge	**4.5**	**2.5**
CAS-2 (normative sample)	6.3	4.5
Naglieri General Ability Test-Verbal (Ns= 392 & 709)	6.2	1.0
Naglieri General Ability Test-Quantitative (Ns= 392 & 709)	5.5	4.4
CAS (statistical controls normative sample)	4.8	4.8
Naglieri General Ability Test-Nonverbal (Ns= 392 & 709)	4.4	0.3
CAS-2 (statistical controls normative sample)	4.3	1.8
Naglieri General Ability Test-Quantitative (N = 6,098)	4.3	2.9
NNAT (matched samples)	4.2	2.8
Naglieri General Ability Test-Verbal (N= 5,739)	4.2	1.3
Naglieri General Ability Test-Nonverbal (N=6,887)	3.5	0.9
CAS-2 Brief (normative samples)	2.0	2.8

Note: The results summarized here were reported for the Otis-Lennon School Ability Test by Avant and O'Neal (1986); Stanford-Binet IV by Wasserman (2000); Woodcock-Johnson III race differences by Edwards and Oakland (2006) and ethnic differences by Sotelo-Dynega, Ortiz, Flanagan, and Chaplin (2013); CogAT7 by Carman, Walther and Bartsch (2018) and Lohman (2016), WISC-V by Kaufman, Raiford, and Coalson (2016); Kaufman Assessment Battery for Children-II by Lichtenberger, Volker, Kaufman & Kaufman, (2006) and Scheiber, C., Kaufman, A.S. Which of the Three KABC-II Global Scores is the Least Biased?. Journal of Pediatric Neuropsychology 1, 21–35 (2015); CAS by Naglieri, Rojahn, Matto, and Aquilino (2005); CAS-2 and CAS2:Brief by Naglieri, Das, and Goldstein (2014a and 2014b), Naglieri Nonverbal Ability Test by Naglieri and Ronning (2000), Naglieri General Ability Tests by Naglieri, Brulles, and Lansdowne (2022 & 2024) and Selvamenan et al., 2024 (in press).
UPDATED 3.6.24

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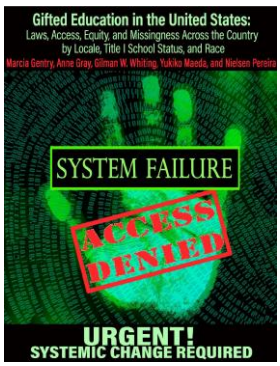
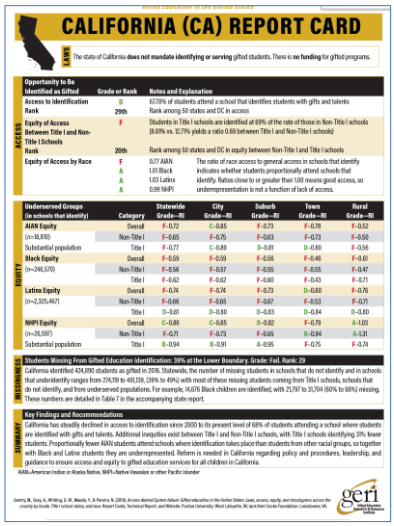
Access Denied: Gentry et. al. (2019)



Key Findings

- Underrepresentation of AIAN, Black, Latinx, and NHPI students is widespread and persistent across the United States, continuing a trend of more than 40 years; whereas, Asian and White students are consistently well-represented.
- Students in Rural and Town locales are more likely to be less proportionally represented than their Suburb and City counterparts.



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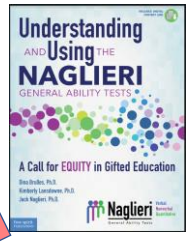
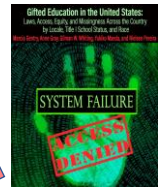
Numbers of Gifted Students Missed = 1,266,708

Gifted Enrollment by Race and Ethnicity as of 2020 (updated 2024).	N in Public Education K-12 in 2020	N Potentially Gifted (8%; 92 percentile)	N Students in gifted programs	Difference Between Potential and Identified
White	23,834,458	1,906,757	1,937,350	30,593
Black	7,754,506	620,360	330,774	-289,586
Hispanic	14,337,467	1,146,997	600,498	-546,499
Native Americans	748,000	59,840	26,700	-33,140
Two or More Races	1,641,817	131,345	105,371	-25,974
Total Non-Whites	24,481,790	1,958,543	1,063,343	**-895,200**

1. Representation Ratio formula: N in Gifted Education / Potential N in Gifted Education.
2. Total Enrollment data from Table 203.60. Enrollment and percentage distribution of enrollment in public elementary and secondary schools, by race/ethnicity and level of education: Fall 1999 through fall 2027. https://nces.ed.gov/programs/digest/d17/tables/dt17_203.60.asp
3. Gifted Enrollment data from Table 204.80. Number of public-school students enrolled in gifted and talented programs, by sex, race/ethnicity, and state: Selected years, 2004 through 2013–14. https://nces.ed.gov/programs/digest/d17/tables/dt17_204.80.asp
4. From: Brulles, D., Lansdowne, K. & Naglieri, J. A. (2022). *Understanding and Using the Naglieri General Ability Tests: A Call to Equity in Gifted Education.* Minneapolis, MN: Free Spirit Publishing.
5. Native American data from: Steven C. Haas, Associate Director, Indigenous Students Leap Ahead (ISLA) Project.

Percent of Schools that do not Identify	41.5%
Additional non-white gifted students = 41.5% of 895,200	N = 371,508
Total non-white gifted students missed	**N = 1,266,708**





895,200

371,508

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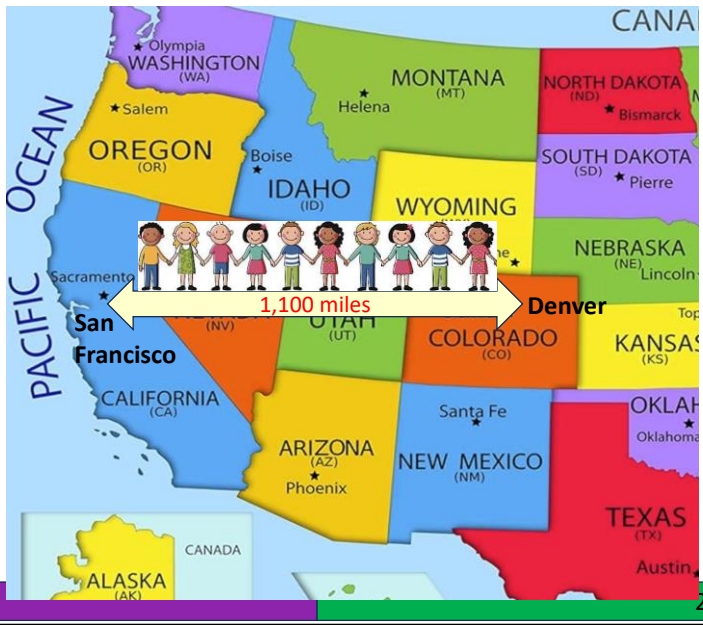
1,266,708 Students Missed Would Connect Denver to San Francisco !



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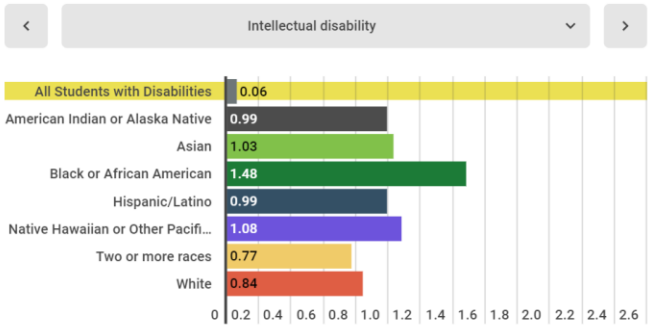
OSEP Office of Special Education Programs
Office of Special Education and Rehabilitative Services

OSEP Fast Facts: Race and Ethnicity of Children with Disabilities Served under IDEA Part B

For the purposes of this fact sheet, racial ethnic groups are defined in the IDEA Part B Child Count and Educational Environments for School Year 2019-2020, OSEP Data Documentation. https://www2.ed.gov/programs/osepidea/618-data/collection-documentation/data-documentation-files/part-b/child-count-and-educational-environment/idea-partb-childcountandedenvironment-2019-20.pdf

Risk Ratio of Students with Disabilities by Disability Category and by Specific Race and Ethnicity, Ages 5 (in kindergarten) through 21: SY 2019-20



The relative risk ratio of students with disabilities under IDEA by race and Ethnicity is the probability of a student with a disability being identified for intellectual disability. The higher the number, the larger the probability. Nationally, **Black Students are 1.48 times more likely to be identified with intellectual disability** compared to all students with disabilities.

https://sites.ed.gov/idea/osep-fast-facts-race-and-ethnicity-of-children-with-disabilities-served-under-idea-part-b/

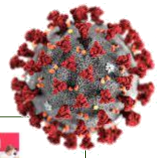
https://ldaamerica.org/lda_today/disproportionate-identification-of-students-of-color-in-special-education/

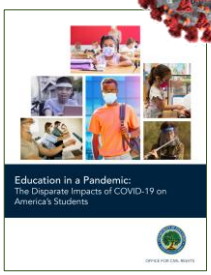
30

30

Academic Learning Loss & COVID

- COVID-19 has increased the impact of disparities in access and opportunity for students of color and they are even further behind than they were before.
- Their **scores on traditional intelligence tests** which demand knowledge **are even more inaccurate.**
- **Solutions**:
  - For traditional tests, use post-COVID norms only.
  - Use intelligence tests that are not dependent upon knowledge





Education in a Pandemic: The Disparate Impacts of COVID-19 on America's Students. US Dept. of Ed- Office of Civil Rights. June, 21, 2021. https://www2.ed.gov/about/offices/list/ocr/docs/20210608-impacts-of-covid19.p

31

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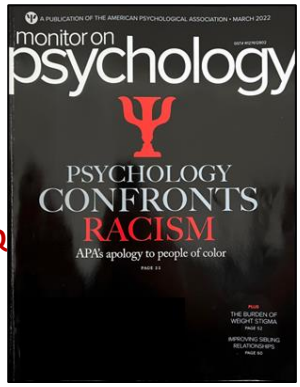
APA Apology for Promoting Racism

- 'APA recognizes the **roles of psychology in promoting…racism, and the harms that have been inflicted on communities of colo**r … and the ways measurement of intelligence has been systematically used to create the ideology of White supremacy'
- Throughout the 1900s prominent **psychologists involved in IQ test development supported eugenics**

Psychology … **helped to create, express, and sustain them, continues to bear their indelible imprint, and often continues to publish research that conforms with White racial hierarchy**



32

The test you choose determines the results you receive, the decisions you make, and the future of your students

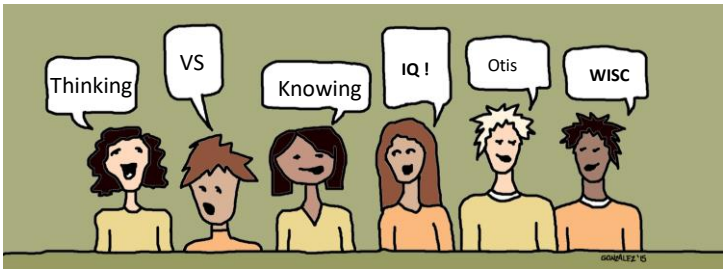
That is the *Practical Impact* of test selection

33

33

Reflection time…

- **What was the MOST important idea that was shared so far**



1. Gifted or Talented?
2. Identification Issues
3. What solutions did we create?
4. What about Twice Exceptional gifted students?

Reducing Under-representation of Minority Children in Gifted Education –

SENG 2004 Washington DC

Jack A. Naglieri, Ph.D.
Professor of Psychology
George Mason University
naglieri@gmu.edu
www.jacknaglieri.com

conclusions

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The Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative

Naglieri Verbal Nonverbal Quantitative
General Ability Tests

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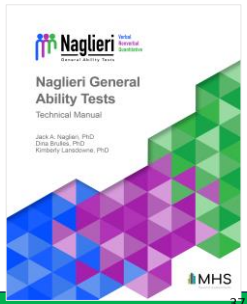
Learn More
NaglieriGiftedTests.com



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Let's Connect

Naglieri Verbal Nonverbal Quantitative
General Ability Tests

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Naglieri General Ability Tests

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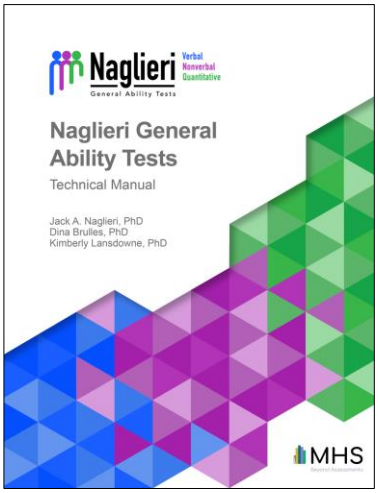
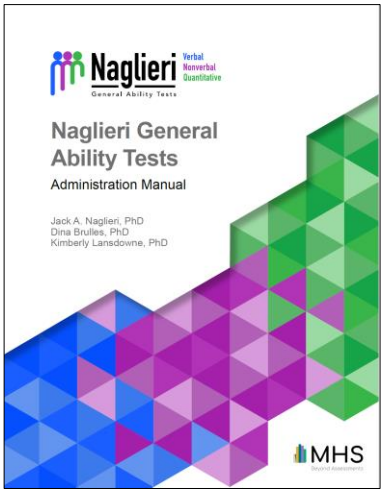
Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative Technical and Administration Manuals





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2016 – 2022 Developmental Process

Naglieri General Ability Tests

Naglieri General Ability Tests — Verbal Nonverbal Quantitative

- We **explicitly made tests for equitable identification** of students from diverse cultural, linguistic, or socioeconomic backgrounds
- We used the traditional Verbal, Nonverbal and Quantitative formats to **measure general ability** using:
  - Test questions that do not require academic knowledge,
  - Verbal and Quantitative test questions that can be solved using any language,
  - Animated instructions remove the need for comprehension of directions,
  - A multiple-choice response removes the need for verbal expression.
  - Online (and paper) administration for group or individual assessment
  - Universal assessment using local and national norms

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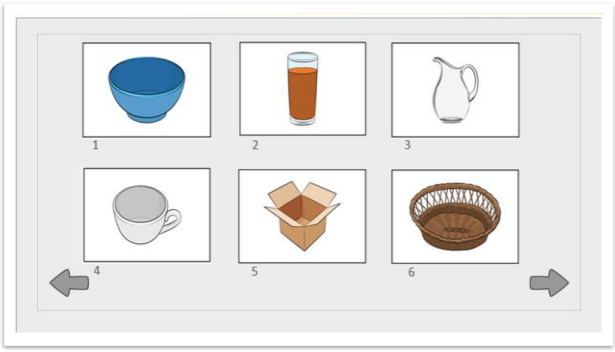
The **Naglieri-V measures general ability** using pictures of objects representing verbal concepts. The items are comprised of universally recognized pictures that do not rely on knowledge acquired in academic settings.

The student's task is to identify which of the six pictures does *not* represent the verbal concept shared by the other five.

The test items require close examination of *the relationships among the pictures*.



Naglieri General Ability Tests | Verbal

Naglieri General Ability Test – Verbal (Naglieri & Brulles)

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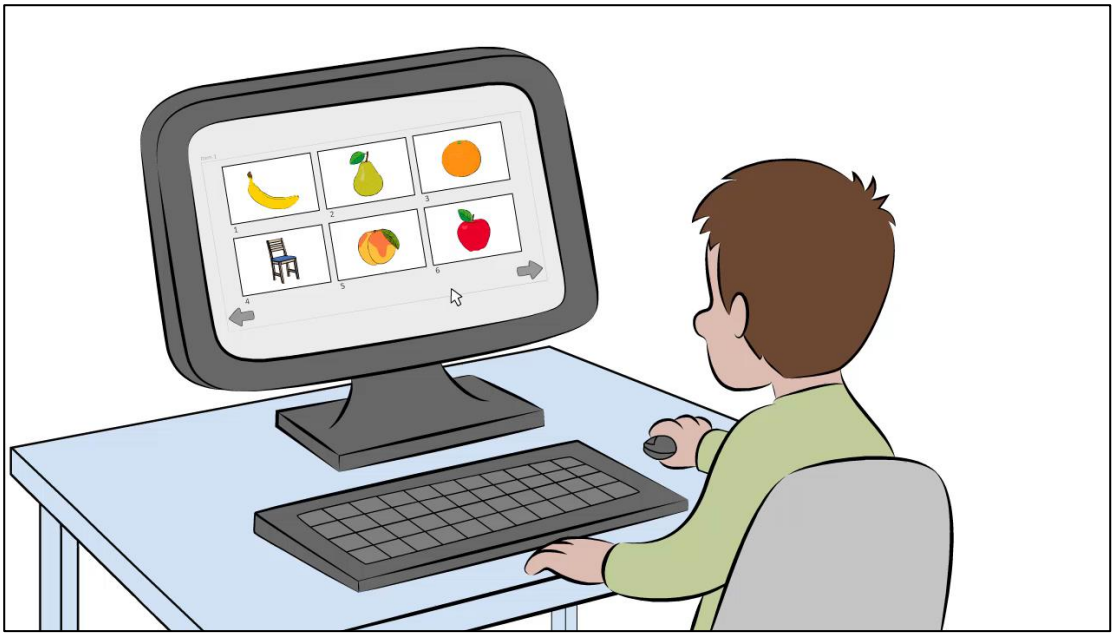
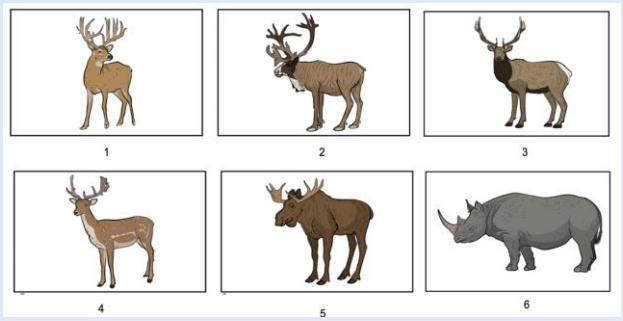
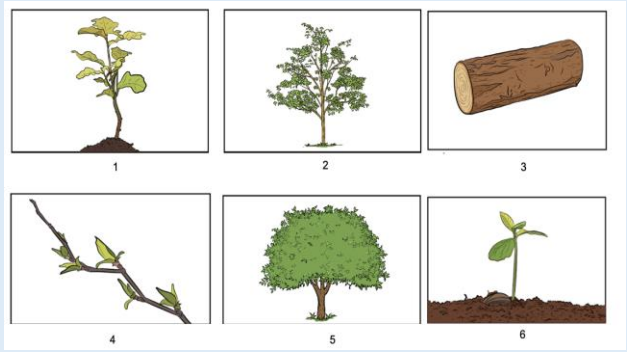
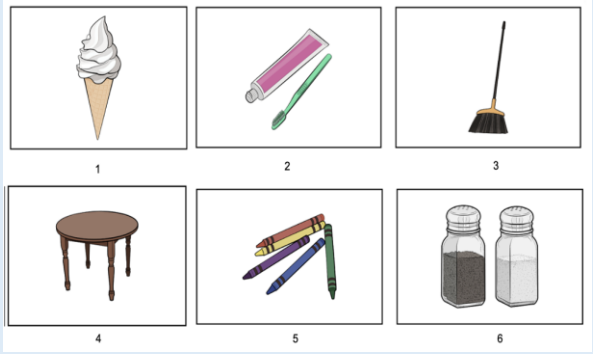


42

Turn & Talk





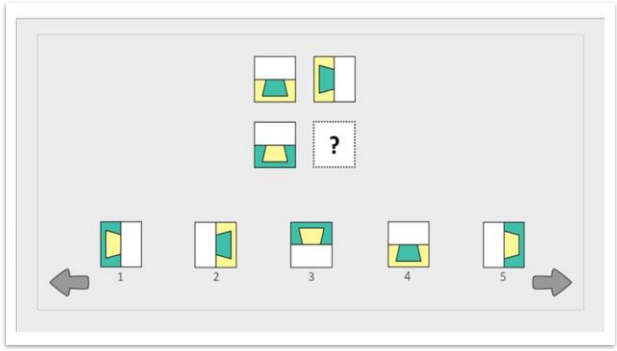


43

The **Naglieri-NV measures general ability** using questions that require a student to recognize the relationships among the shapes.

The structure of the items varies, but all items require that the student decipher the logic behind *the relationships among the shapes*, sequences, spatial orientations, patterns, and other distinguishing characteristics.

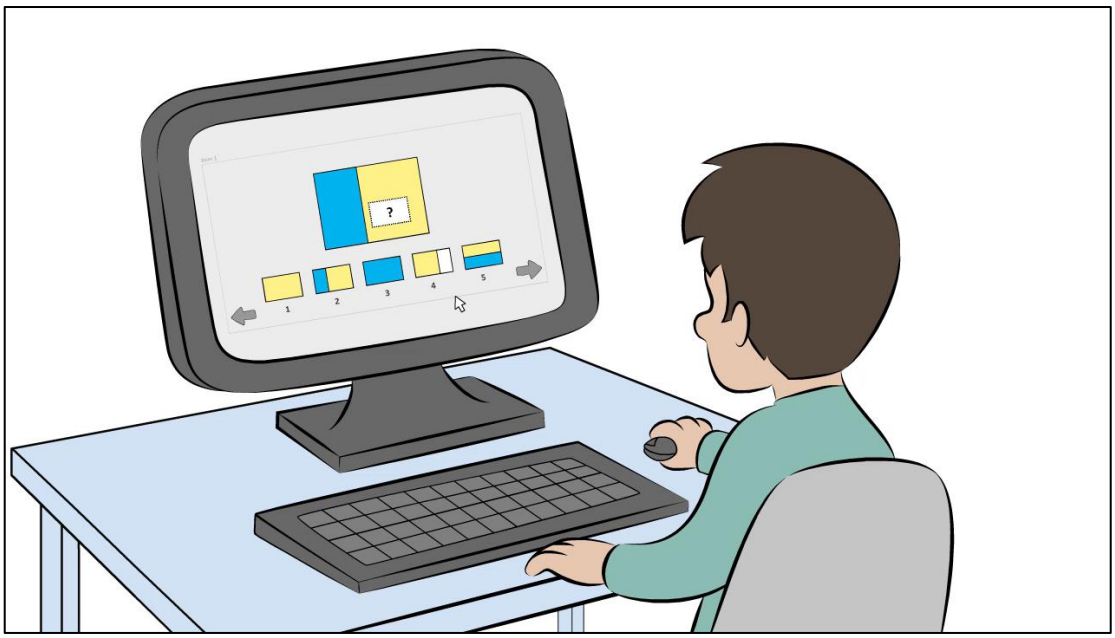
This nonverbal test is conceptually similar to the NNAT3 but it contains many NEW kinds of items not included before.



Naglieri General Ability Tests | Nonverbal

Naglieri General Ability Test –Nonverbal (Naglieri)

44



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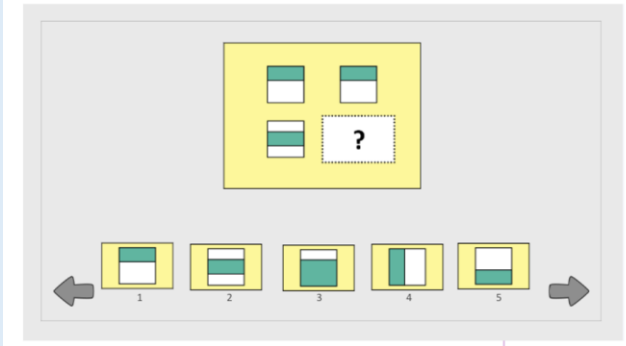
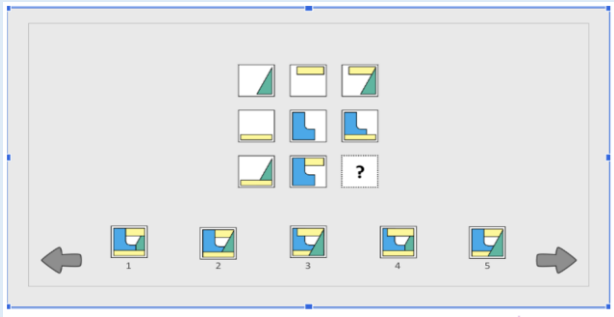
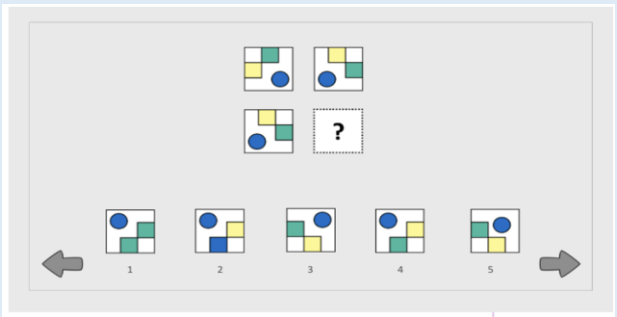
Turn & Talk







46

The **Naglieri-Q measures general ability** using numbers and/or symbols. Students must decipher the logic behind the relationships among the numbers and symbols to identify the answer.

Items require the student to determine equivalency of simple quantities, analyze a matrix of numbers and solve mathematical sequences.

Items require minimal academic knowledge, and the calculation requirements are simple.

The items have no verbal requirements (i.e., no math word problems) so that they can be solved regardless of the language used by the student.

Naglieri General Ability Tests | Quantitative

Naglieri General Ability Test – Quantitative (Naglieri & Lansdowne)

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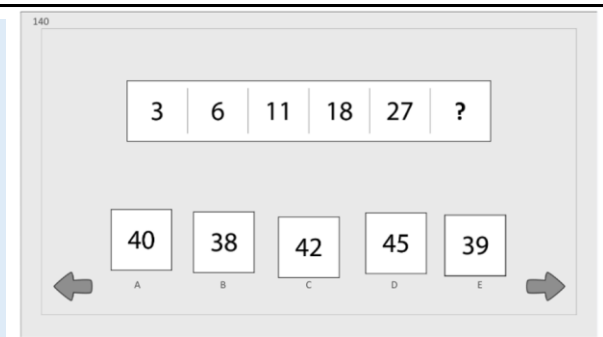
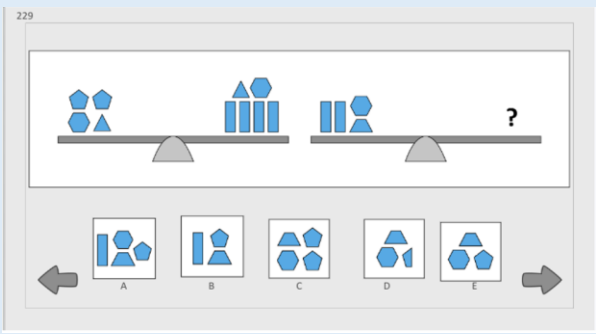
Turn & Talk





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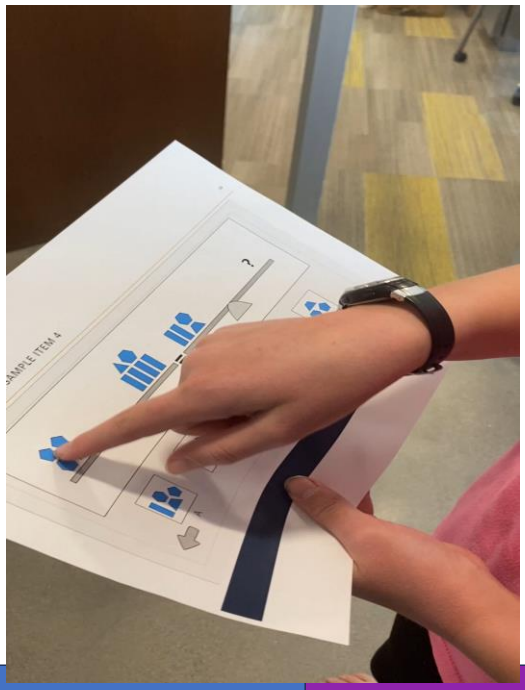

Naglieri General Ability Tests | Quantitative

Naglieri General Ability Test – Quantitative (Naglieri & Lansdowne)

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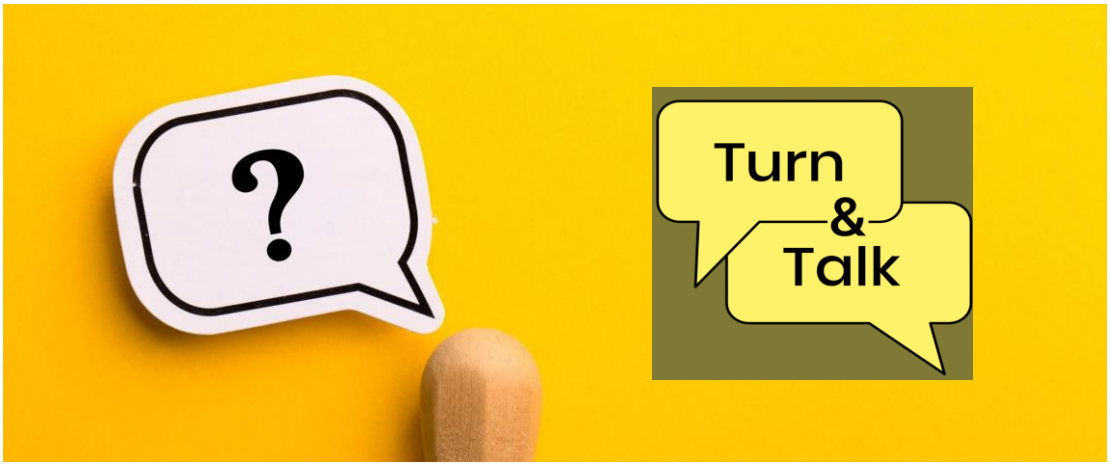
Now that you have seen some of the items, what do you think ?



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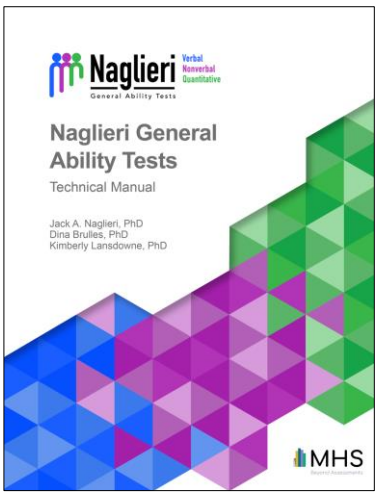
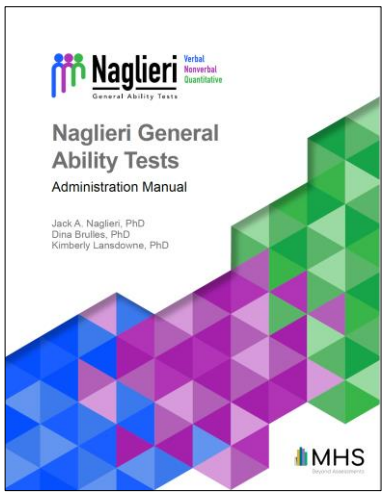
Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative Technical and Administration Manuals





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Response Style Indicator Legend	
CompletionTime	The amount of time in minutes from when the student started the items to when they timed out or submitted the test.*
CompletionTimeFlag	If a student responded to all items within a test in two minutes or less, a flag will appear to indicate an unusually fast response style. "-" indicates that there is no flag.*
OmittedItems	The number of items the student viewed but did not answer before they timed out or submitted the test.
Omitted Items Flag	If a student omitted a certain number of items on the test, a flag will appear. For students in Kindergarten and Grade 1, the warning appears if they omit 10 or more items on the test and for students in Grades 2 to 6, the warning appears if they omit 5 or more items on the test. "-" indicates that there is no flag.
Identical Responses	The number of identical responses (e.g., selecting option 2) a student provided in a row.
Identical Responses Flag	If a student provided identical responses to 10 or more consecutive items on the test, a flag will appear. "-" indicates that there is no flag.
Inconsistent Responses	The ratio between the number of correct responses for harder items and the number of correct responses for easier items.
Inconsistent Responses Flag	If a student has a smaller ratio (i.e., values below 0.8) a flag will appear which indicates that the student correctly answered more of the difficult items on the test compared to the easier items. "-" indicates that there is no flag.
Score Legend	
Attempted	Indicates if the student completed the test. CBS (Cannot Be Scored) indicates a test was not completed or attempted, and therefore no score can be calculated.
DateTested	The date the student completed the test.
TimedOut	Indicates if the student timed out of the test before completing all the items.
ItemsAttempted	The number of items the student attempted before they timed out or submitted the test.
RawScore	The sum of the items answered correctly on a specific test, up to the point where the discontinue rule is met.
PercentileRank	The percentage of students in the norm sample who obtained the same or lower score than the score obtained by the student.
Stanine	The value a student ranks out of nine broad categories.
StandardScore	The student's ability, relative to the average of the norm sample.
ConfidenceInterval	This shows a range of values based on the standard score that you can be 95% confident contains the student's true score.
Total	When a student has completed all three tests, a Total Score based on all three tests is computed. When a student has completed only two tests, a Total Score based on the two-test combination is computed.
Additional Information Legend	
-1	Indicates a student never saw the item
Duplicate	Indicates that 2 or more of the same test records exist for this student ID. The most recent record has been scored.

*Note: If the timer is turned off on the student's test, the completion time will only reflect the time spent in the test before the timer was turned off. This may result in a completion time flag if the timer was turned off before 2 minutes.

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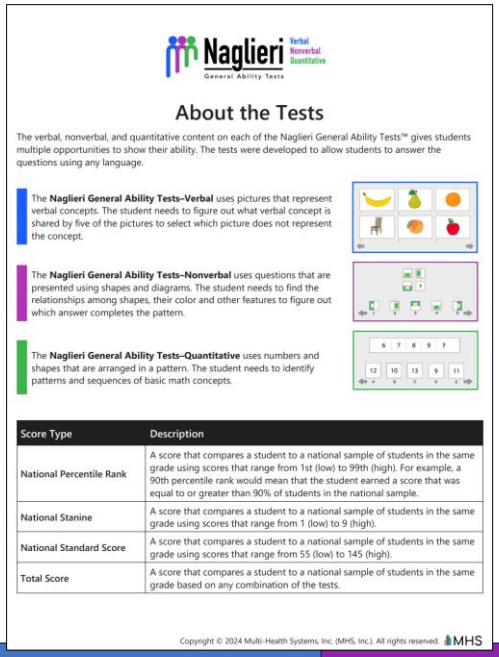


Naglieri Verbal Nonverbal Quantitative General Ability Tests

About the Tests

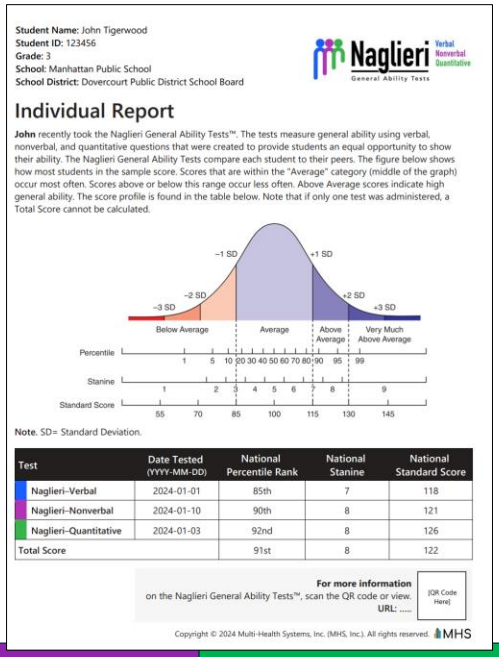
The verbal, nonverbal, and quantitative content on each of the Naglieri General Ability Tests™ gives students multiple opportunities to show their ability. The tests were developed to allow students to answer the questions using any language.

The **Naglieri General Ability Tests–Verbal** uses pictures that represent verbal concepts. The student needs to figure out what verbal concept is shared by five of the pictures to select which picture does not represent the concept.

The **Naglieri General Ability Tests–Nonverbal** uses questions that are presented using shapes and diagrams. The student needs to find the relationships among shapes, their color and other features to figure out which answer completes the pattern.

The **Naglieri General Ability Tests–Quantitative** uses numbers and shapes that are arranged in a pattern. The student needs to identify patterns and sequences of basic math concepts.

Score Type	Description
National Percentile Rank	A score that compares a student to a national sample of students in the same grade using scores that range from 1st (low) to 99th (high). For example, a 90th percentile rank would mean that the student earned a score that was equal to or greater than 90% of students in the national sample.
National Stanine	A score that compares a student to a national sample of students in the same grade using scores that range from 1 (low) to 9 (high).
National Standard Score	A score that compares a student to a national sample of students in the same grade using scores that range from 55 (low) to 145 (high).
Total Score	A score that compares a student to a national sample of students in the same grade based on any combination of the tests.



Student Name: John Tigerwood
Student ID: 123456
Grade: 3
School: Manhattan Public School
School District: Dovercourt Public District School Board

Naglieri Verbal Nonverbal Quantitative General Ability Tests

Individual Report

John recently took the Naglieri General Ability Tests™. The tests measure general ability using verbal, nonverbal, and quantitative questions that were created to provide students an equal opportunity to show their ability. The Naglieri General Ability Tests compare each student to their peers. The figure below shows how most students in the sample score. Scores that are within the "Average" category (middle of the graph) occur most often. Scores above or below this range occur less often. Above Average scores indicate high general ability. The score profile is found in the table below. Note that if only one test was administered, a Total Score cannot be calculated.

Note. SD= Standard Deviation.

Test	Date Tested (YYYY-MM-DD)	National Percentile Rank	National Stanine	National Standard Score
Naglieri–Verbal	2024-01-01	85th	7	118
Naglieri–Nonverbal	2024-01-10	90th	8	121
Naglieri–Quantitative	2024-01-03	92nd	8	126
Total Score		91st	8	122

For more information
on the Naglieri General Ability Tests™, scan the QR code or view.
URL: .....

[QR Code Here]

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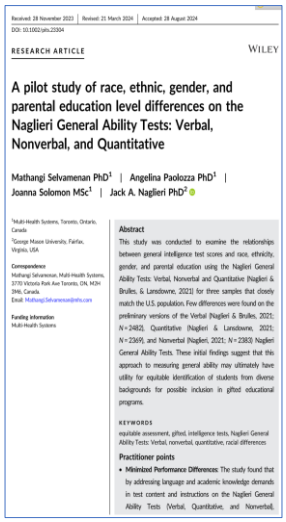
Research Evidence of Equity

Selvamenan, M., Paolozza, A., Solomon, J., Naglieri, J. A., & Schmidt, M. T. (Psychology in the Schools, 2004). Race, Ethnic, Gender, and Parental Education Level Differences on Verbal, Nonverbal, and Quantitative Naglieri General Ability Tests: Achieving Equity.



Received: 28 November 2023 | Revised: 21 March 2024 | Accepted: 28 August 2024
DOI: 10.1002/pits.23304

RESEARCH ARTICLE — WILEY

A pilot study of race, ethnic, gender, and parental education level differences on the Naglieri General Ability Tests: Verbal, Nonverbal, and Quantitative

Mathangi Selvamenan PhD[1] | Angelina Paolozza PhD[1] | Joanna Solomon MSc[1] | Jack A. Naglieri PhD[2]

[1]Multi-Health Systems, Toronto, Ontario, Canada
[2]George Mason University, Fairfax, Virginia, USA

Correspondence
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Email: MathangiSelvamenan@mhs.com

Funding information
Multi-Health Systems

Abstract

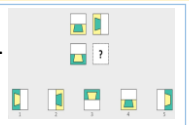
This study was conducted to examine the relationships between general intelligence test scores and race, ethnicity, gender, and parental education using the Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative (Naglieri & Brulles, & Lansdowne, 2021) for three samples that closely match the U.S. population. Few differences were found on the preliminary versions of the Verbal (Naglieri & Brulles, 2021; N = 2482), Quantitative (Naglieri & Lansdowne, 2021; N = 2369), and Nonverbal (Naglieri, 2021; N = 2380) Naglieri General Ability Tests. These initial findings suggest that this approach to measuring general ability may ultimately have utility for equitable identification of students from diverse backgrounds for possible inclusion in gifted educational programs.

KEYWORDS
equitable assessment, gifted, intelligence tests, Naglieri General Ability Tests: Verbal, nonverbal, quantitative, racial differences

Practitioner points

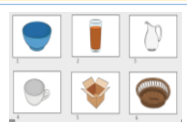
- **Minimized Performance Differences:** The study found that by addressing language and academic knowledge demands in test content and instructions on the Naglieri General Ability Tests (Verbal, Quantitative, and Nonverbal),

NONVERBAL TEST



- N= 3,630 Sample closely matches the US population on key demographics
- **No GENDER differences** found between **males** and **females** for raw score across all forms
- **No RACE/ETHNICITY differences** among **White, Black, & Hispanic** for raw score across all forms
- **No PARENTIAL EDUCATIONAL differences** among five education levels (No high school diploma; High School graduate; Some college/Associate's degree; Bachelor's degree; Graduate/professional degree) for raw score across all forms

VERBAL TEST



- N= 2,482 Sample closely matches the US population on key demographics
- **No GENDER differences** found between **males** and **females** for raw score across all forms
- **No RACE/ETHNICITY differences** among **White, Black, & Hispanic** for raw score across all forms
- **No PARENTIAL EDUCATIONAL differences** among five education levels (No high school diploma; High School graduate; Some college/Associate's degree; Bachelor's degree; Graduate/professional degree) for raw score across all forms

QUANTITATIVE TEST

- N= 2,841 Sample closely matches the US population on key demographics
- **No GENDER differences** found between **males** and **females** for raw score across all forms
- **No RACE/ETHNICITY differences** among **White, Black, & Hispanic** for raw score across all forms
- **No PARENTIAL EDUCATIONAL differences** among five education levels (No high school diploma; High School graduate; Some college/Associate's degree; Bachelor's degree; Graduate/professional degree) for raw score across all forms

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Summary of Reliability, Validity and Fairness

- The Naglieri–V items were subjected to a cultural review
- **Reliability coefficients** for the Verbal, Nonverbal and Quantitative tests were **high and exceed guidelines** for test reliability
- Confirmatory factor analysis of the three tests, independently and in combination supported a broad factor **of general ability**
- The Naglieri–NV correlated significantly **with the NNAT3**
- **Gifted students scored considerably higher** than students from the general population
- All test ITEMS were inspected for fairness by gender, race, ethnicity, parental education level (PEL), and primary language spoken using differential item functioning (DIF) and analyses of covariance; **negligible to small differences were found**
- Overall, initial findings suggest that the Naglieri General Ability Tests meet guidelines for reliability, validity, and fairness

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Comparison of English and Non-English Groups

- Total sample size = 322
- A matched sample was randomly drawn, pairing an English-speaking student with a Non-English-speaking student on the basis of gender, race, ethnicity, region, and age

Table 6.30. Demographic Characteristics of Matched English and Non-English Sample: Naglieri General Ability Tests

Demographic		English		Non-English		Total	
		N	%	*N*	%	*N*	%
Grade	Kindergarten	1	0.6	3	1.9	4	1.2
	Grade 1	25	15.5	7	4.3	32	9.9
	Grade 2	36	22.4	68	42.2	104	32.3
	Grade 3–4	55	34.2	41	25.5	96	29.8
	Grade 5–6	23	14.3	21	13.0	44	13.7
	Grade 7–9	21	13.0	21	13.0	42	13.0
Gender	Female	86	53.4	86	53.4	172	53.4
	Male	75	46.6	75	46.6	150	46.6
	Other	0	0.0	0	0.0	0	0.0
Racial/Ethnic Group	Asian	9	5.6	9	5.6	18	5.6
	Black	10	6.2	10	6.2	20	6.2
	Hispanic	85	52.8	85	52.8	170	52.8
	White	55	34.2	55	34.2	110	34.2
	Other	2	1.2	2	1.2	4	1.2
U.S. Region	Midwest	0	0.0	0	0.0	0	0.0
	South	149	92.5	149	92.5	298	92.5
	West	12	7.5	12	7.5	24	7.5
Age in years *M* (*SD*)		9.1 (2.2)		9.1 (2.2)		9.1 (2.2)	
Total		161	100.0	161	100.0	322	100.0

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Group Differences by Primary Language Spoken

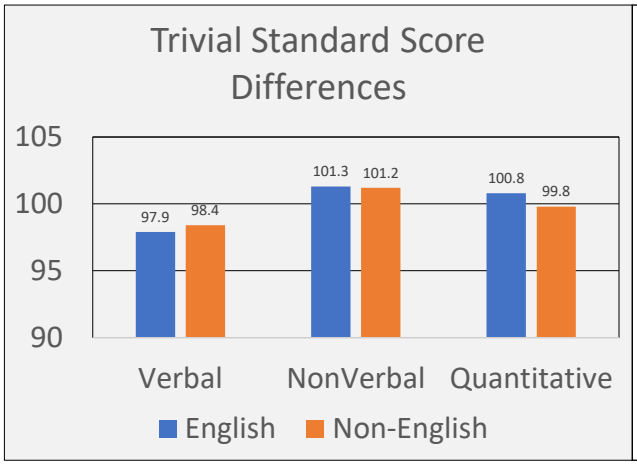

Table 6.31. Group Differences by Primary Language Spoken: Naglieri General Ability Tests

Test	Language Spoken	Descriptives		Differences		
		M	*SD*	Cohen's *d*	95% CI	*t*
Naglieri-V	English	97.9	14.5	-0.04	-0.07, 0.13	-0.32
	Non-English	98.4	14.8			
Naglieri-NV	English	101.3	14.1	0.00	-0.17, 0.02	0.04
	Non-English	101.2	13.5			
Naglieri-Q	English	100.8	14.1	0.07	-0.07, 0.13	0.65
	Non-English	99.8	12.9			

Note. N = 161 for each English and Non-English group. t statistic produced from a Welch Two Sample test. Cohen's |d|: small effect size = 0.20 to 0.49; medium effect size = 0.50 to 0.79; large effect size ≥ 0.80. Positive d values indicate higher scores for English Primary students. Naglieri–V = Naglieri General Ability Tests–Verbal; Naglieri–NV = Naglieri General Ability Tests–Nonverbal; Naglieri–Q = Naglieri General Ability Tests–Quantitative.

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Female (N = 3,000) Male (N = 2,999) Differences

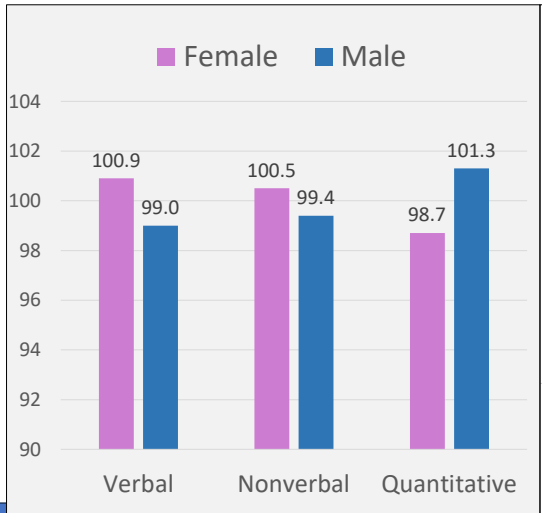

Table 7.9. Group Differences by Gender: Naglieri General Ability Tests

Test		Gender		Cohen's *d*
		Female	Male	
Naglieri–V	*M*	100.9	99.0	0.13
	SD	14.7	15.2	
Naglieri–NV	*M*	100.5	99.4	0.08
	SD	14.7	15.3	
Naglieri–Q	*M*	98.7	101.3	-0.17
	SD	14.4	15.4	
Total Score	*M*	100.1	99.9	0.01
	SD	14.7	15.3	

Note. Female N = 3,000 and Male N = 2,999. Guidelines for interpreting Cohen's |d|: small effect size = 0.20 to 0.49; medium effect size = 0.50 to 0.79; large effect size >= 0.80. Positive Cohen's d values imply higher scores for females. Naglieri–V = Naglieri General Ability Tests–Verbal; Naglieri–NV = Naglieri General Ability Tests–Nonverbal; Naglieri–Q = Naglieri General Ability Tests–Quantitative. Naglieri–V = Naglieri General Ability Tests–Verbal; Naglieri–NV = Naglieri General Ability Tests–Nonverbal; Naglieri–Q = Naglieri General Ability Tests–Quantitative; Total Score = Naglieri General Ability Tests–Total Standard Score.

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POST COVID National Norms

Grade-based National Norms 1,000 students pre grade (K to grade 5).

Table 1. National Norm Sample Characteristics.

Demographic		*N*	%	U.S. Census (%)	Difference (%)
Race/Ethnicity	Asian	235	3.9	4.7	-0.8
	Black	919	15.3	12.9	2.4
	Hispanic	1,261	21.0	23.3	-2.3
	White	2,914	48.6	46.1	2.5
	Other	671	11.2	12.9	-1.7
U.S. Region	Northeast	804	13.4	15.9	-2.5
	Midwest	1,270	21.2	20.2	1.0
	South	2,328	38.8	38.1	0.7
	West	1,598	26.6	25.7	0.9
Total National Norm Sample		6,000	100.0		

Note. U.S. population derived from the 2019 American Community Survey.[4]

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How do *different* tests use the *same* ability?

- Even though the tests have different content (shapes, words, numbers) they all rely on **general ability ('g')**
- They all require understanding relationships among things or ideas

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Summary: Equitable Assessment of Intelligence

- **Equitable evaluation of intelligence** demands test questions that can be solved regardless of the amount of academic knowledge and facility with language a student has
- We have shown that
  - General ability (*g*) **can be measured equitably** across Verbal, Quantitative and Nonverbal content if the tests do not require academic knowledge
- Verbal, Quantitative and Nonverbal are **a description of the content of the tests**' questions **NOT** different types of intelligence
- Equitable tests measure THINKING in a manner that is minimally influenced by KNOWING

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Serving All Gifted Learners

Following identification, how can we create more equitable and inclusive gifted programs and services?

Schools must expand their views, procedures and practices on programs for gifted learners.

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Four Common Program Models Examined **through an equity lens**

- Cluster Grouping
- Honors Classes
- Enrichment Classes
- Self-contained Programs

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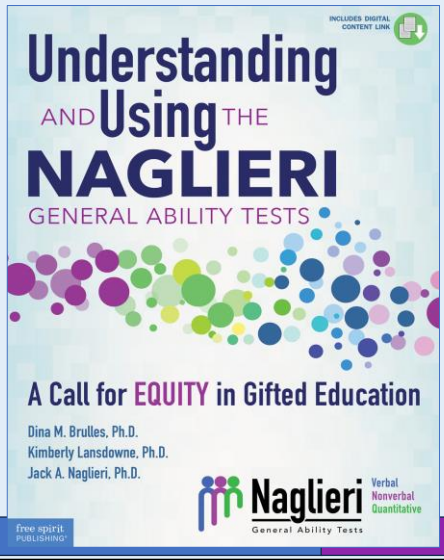
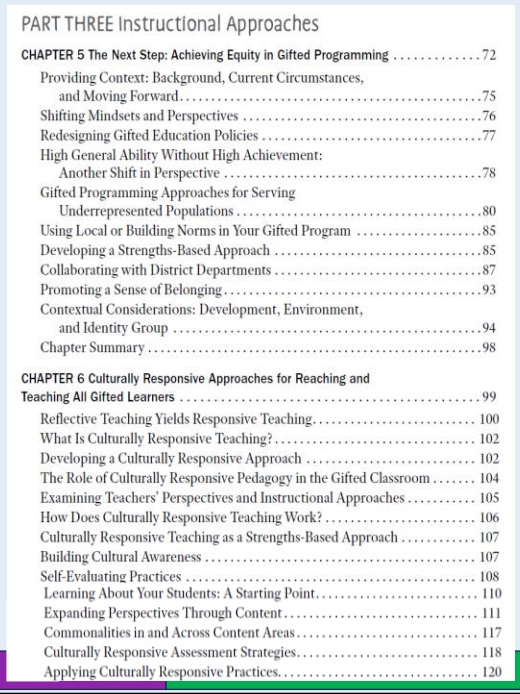
For more information about instruction see:





PART THREE Instructional Approaches

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What reactions do you have about this new way to identify gifted students?

What questions do you have?

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1. Gifted or Talented?
2. Identification Issues
3. What solutions did we create?
4. What about Twice Exceptional gifted students?

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Twice Exceptional Gifted Students with Specific Learning Disability, Autism or ADHD: Neurodiversity and PASS Profiles

For a complete handout on *Neurodiversity* and *2E* assessment scan this QR code →

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Neurodiversity and Twice Exceptional Gifted students

- Identification of gifted students with a disability (2E) demands consideration of guidelines in the
  - ***DSMV*** for Attention Deficit Disorder and Autism Spectrum disorder and
  - ***IDEA*** for Specific Learning Disabilities.
- These students are better understood when we describe neurodiversity according to a theory of BRAIN FUNCTION (e.g., A. R. Luria)
- We will examine PASS patterns of strengths and weaknesses for these three groups

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The Neuro Diversity Podcasts

Episode 230: Measuring Thinking Rather Than Knowledge with Dr. Jack Naglieri (pt 2)

This is part two of our conversation with Dr. Jack Naglieri, an emeritus professor at George Mason University and senior research scientist at the Devereux Center for Resilient Children. Dr. Naglieri is best known for developing the Naglieri Nonverbal Ability Test and the Cognitive Assessment System (CAS).

Episode 229: Measuring Thinking Rather Than Knowledge with Dr. Jack Naglieri (pt 1)

In part one of our two-part series, we are speaking with Dr. Jack Naglieri, an emeritus professor at George Mason University and senior research scientist at the Devereux Center for Resilient Children. Dr. Naglieri is renowned for his work in intelligence testing and the development of the Naglieri Nonverbal Ability Test.

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Twice exceptional gifted students with

- Specific Learning Disabilities (SLD)
- Attention Deficit Hyperactivity Disorder (ADHD)
- Autism Spectrum Disorders (ASD)
- Can be described as '*Neurodiverse*'
- Which means…

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Specific Learning(Dyslexia) Assessment

Why measure "basic psychological processes"

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Gifted Students with Disabilities

- Twice exceptional, or 2E, refers to intellectually gifted children who have a **specific learning disability** (e.g., dyslexia), Attention Deficit Hyperactivity Disorder (ADHD), or autism spectrum disorder (ASD).
- Specific learning disability assessment involves intellectual and academic assessment typically by a school or private psychologist

"(30) SPECIFIC LEARNING DISABILITY.—

"(A) IN GENERAL.—The term 'specific learning disability' means a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations.

"(B) DISORDERS INCLUDED.—Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

"(C) DISORDERS NOT INCLUDED.—Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

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Efforts to Identify Gifted Students (2018)

- 'NAGC recommends …using WISC-V expanded and ancillary index scores … to document giftedness …patterns of strengths and weaknesses for twice exceptional children

NATIONAL ASSOCIATION FOR Gifted Children

Position Statement
(Approved August 2018)

Use of the WISC-V for Gifted and Twice Exceptional Identification
Recommendations for Use

In comprehensive assessment of gifted and twice exceptional children, the WISC-V Full Scale IQ score should **not** be required. The Full Scale score may be disadvantageous for such students and may impede efforts to ensure that gifted classrooms, programs, and schools are accessible to children with disabilities.

Instead, NAGC recommends that any one of the following WISC-V scores (subtests in parentheses), should be acceptable for use in the selection process for gifted programs if it falls within the confidence interval of the required score for admission:

- the **Verbal (Expanded Crystallized) Index (VECI)** (SI, VC, IN and CO),
- the **Nonverbal Index (NVI)** (BD, MR, CD, FW, VP, and PS),
- the **Expanded Fluid Index (EFI)** (MR, FW, PC, and AR),
- the **General Ability Index (GAI)** (BD, SI, MR, VC and FW),
- the **Full Scale IQ Score (FSIQ)** (BD, SI, MR, DS, CD, VC, and FW), and/or
- the **Expanded General Ability Index (EGAI)** (SI, VC, IN, CO, BD, MR, FW and AR).

The **Quantitative Reasoning Index (QRI)** (FW and AR) serves as a good indicator of mathematical talent.

Information about scores is available in test manuals and WISC-V Technical Reports #1 and 5.

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Support for Scales, Subtests or 'g'?

Journal Information
Journal TOC

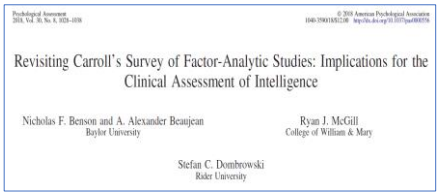
PsycARTICLES: Journal Article

Structural validity of the Wechsler Intelligence Scale for Children–Fifth Edition: Confirmatory factor analyses with the 16 primary and secondary subtests.

© Request Permissions

Canivez, Gary L.,Watkins, Marley W.,Dombrowski, Stefan C.
Canivez, G. L., Watkins, M. W., & Dombrowski, S. C. (2017). Structural validity of the Wechsler Intelligence Scale for Children–Fifth Edition: Confirmatory factor analyses with the 16 primary and secondary subtests. *Psychological Assessment, 29*(4), 458–472.
https://doi.org/10.1037/pas0000358

- …The small portions of variance uniquely captured by [subtests]… render the group factors [scales]of questionable interpretive value independent of g (FSIQ general intelligence)
- Present CFA results confirm the EFA results (Canivez, Watkins, & Dombrowski, 2015); Dombrowski, Canivez, Watkins, & Beaujean (2015); and Canivez, Dombrowski, & Watkins (2015).



Revisiting Carroll's Survey of Factor-Analytic Studies: Implications for the Clinical Assessment of Intelligence

Nicholas F. Benson and A. Alexander Beaujean
Baylor University

Ryan J. McGill
College of William & Mary

Stefan C. Dombrowski
Rider University

- **The results of this study indicate that most cognitive abilities specified in** John Carroll's **three-stratum theory have little-to-no interpretive relevance above and beyond that of general intelligence**.

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Research Supports 'g' but little More

Watkins, M. W., & Canivez, G. L. (2021). Assessing the psychometric utility of IQ scores: A tutorial using the Wechsler intelligence scale for children–fifth edition. School Psychology Review, 1-15.

Benson, N. F., Beaujean, A. A., McGill, R. J, & Dombrowski, S. C. (2018). Revisiting **Carroll's Survey of Factor-Analytic Studies**: Implications for the Clinical Assessment of Intelligence. *Psychological Assessment,* 30, 8, 1028–1038.

Canivez, G. L., Watkins, M. W., & Dombrowski, S. C. (2017). Structural validity of the **Wechsler Intelligence Scale for Children–Fifth Edition:** Confirmatory factor analyses with the 16 primary and secondary subtests. *Psychological Assessment, 29,* 458-472.

Canivez, G. L., & McGill, R. J. (2016). Factor structure of the **Differential Ability Scales–Second Edition**: Exploratory and hierarchical factor analyses with the core subtests. *Psychological Assessment, 28,* 1475-1488. http://dx.doi.org/10.1037/pas0000279

Canivez, G. L., & McGill, R. J. (2016). Factor structure of the **Differential Ability Scales-Second Edition**: Exploratory and hierarchical factor analyses with the core subtests. Psychological Assessment, 28, 1475–1488. https://doi.org/10.1037/pas0000279

Canivez, G. L. (2008). Orthogonal higher order factor structure of the **Stanford-Binet Intelligence Scales-Fifth Edition** for children and adolescents. School Psychology Quarterly, 23, 533–541.

Dombrowski, S. C., **Canivez, G. L.,** & Watkins, M. W. (2017, May). Factor structure of the 10 **WISC–V** primary subtests across four standardization age groups. *Contemporary School Psychology.* Advance online publication.

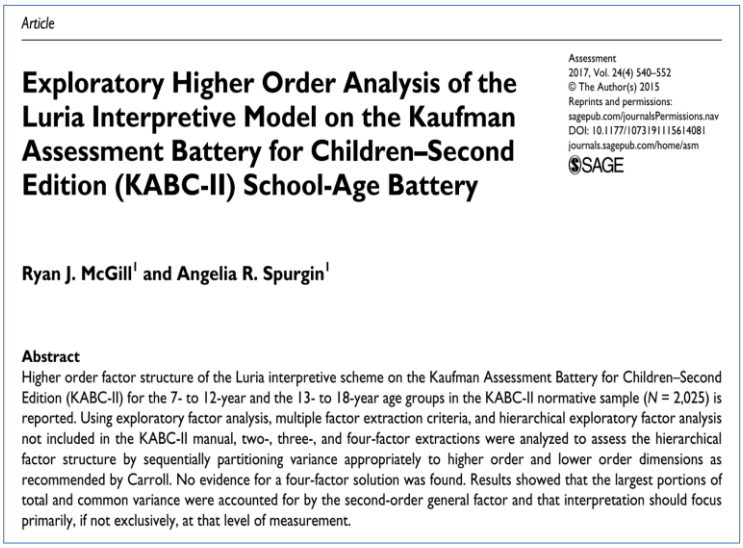
Dombrowski, S. C., McGill, R. J., & Canivez, G. L. (2017). Exploratory and hierarchical factor analysis of the **WJ IV Cognitive** at school age. *Psychological Assessment, 29,* 394-407.

McGill, R. J., & **Canivez, G. L.** (2017, October). Confirmatory factor analyses of the **WISC–IV Spanish** core and supplemental Subtests: Validation evidence of the Wechsler and CHC models. *International Journal of School and Educational Psychology*. Advance online publication.

Watkins, M. W., Dombrowski, S. C., & **Canivez, G. L.** (2017, October). Reliability and factorial validity of the **Canadian Wechsler Intelligence Scale for Children–Fifth Edition**. *International Journal of School and Educational Psychology*.

KABC-II

- "No evidence for a four-factor (Luria model) solution was found"
- Support for the "general factor" was found … "interpretation should focus primarily, if not exclusively, at that level"



Article

Exploratory Higher Order Analysis of the Luria Interpretive Model on the Kaufman Assessment Battery for Children–Second Edition (KABC-II) School-Age Battery

Assessment
2017, Vol. 24(4) 540–552

DOI: 10.1177/1073191115614081
journals.sagepub.com/home/asm
SAGE

Ryan J. McGill[1] and Angelia R. Spurgin[1]

Abstract

Higher order factor structure of the Luria interpretive scheme on the Kaufman Assessment Battery for Children–Second Edition (KABC-II) for the 7- to 12-year and the 13- to 18-year age groups in the KABC-II normative sample ($N = 2,025$) is reported. Using exploratory factor analysis, multiple factor extraction criteria, and hierarchical exploratory factor analysis not included in the KABC-II manual, two-, three-, and four-factor extractions were analyzed to assess the hierarchical factor structure by sequentially partitioning variance appropriately to higher order and lower order dimensions as recommended by Carroll. No evidence for a four-factor solution was found. Results showed that the largest portions of total and common variance were accounted for by the second-order general factor and that interpretation should focus primarily, if not exclusively, at that level of measurement.

Research Supports 'g' but little More

Benson, N. F., Beaujean, A. A., McGill, R. J, & Dombrowski, S. C. (2018). Revisiting **Carroll's Survey of Factor-Analytic Studies**: Implications for the Clinical Assessment of Intelligence. *Psychological Assessment,* 30, 8, 1028–1038.

Canivez, G. L., Watkins, M. W., & Dombrowski, S. C. (2017). Structural validity of the **Wechsler Intelligence Scale for Children–Fifth Edition:** Confirmatory factor analyses with the 16 primary and secondary subtests. *Psychological Assessment, 29,* 458-472.

Canivez, G. L., & McGill, R. J. (2016). Factor structure of the **Differential Ability Scales–Second Edition**: Exploratory and hierarchical factor analyses with the core subtests. *Psychological Assessment, 28,* 1475-1488. http://dx.doi.org/10.1037/pas0000279

Canivez, G. L. (2008). Orthogonal higher order factor structure of the **Stanford-Binet Intelligence Scales-Fifth Edition** for children and adolescents. School Psychology Quarterly, 23, 533–541.

Dombrowski, S. C., McGill, R. J., & Canivez, G. L. (2017). Exploratory and hierarchical factor analysis of the **WJ IV Cognitive** at school age. *Psychological Assessment, 29,* 394-407.

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McGill, R. & Spurgin, A. (2017) Exploratory Higher Order Analysis of the Luria Interpretive Model on the Kaufman Assessment Battery for Children-second Edition (KABC-II) School-Age Battery. Assessment, 24, 540-552.

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School Psychology Quarterly
2011, Vol. 26, No. 4, 305–317

1045-3830/11/$12.00 DOI: 10.1037/a0025973

Hierarchical Factor Structure of the Cognitive Assessment System: Variance Partitions From the Schmid–Leiman (1957) Procedure

Gary L. Canivez
Eastern Illinois University

Orthogonal higher-order factor structure of the Cognitive Assessment System (CAS; Naglieri & Das, 1997a) for the 5–7 and 8–17 age groups in the CAS standardization sample is reported. Following the same procedure as recent studies of other prominent intelligence tests (Dombrowski, Watkins, & Brogan, 2009; Canivez, 2008; Canivez & Watkins, 2010a, 2010b; Nelson & Canivez, 2011; Nelson, Canivez, Lindstrom, & Hatt, 2007; Watkins, 2006; Watkins, Wilson, Kotz, Carbone, & Babula, 2006), three- and four-factor CAS exploratory factor extractions were analyzed with the Schmid and Leiman (1957) procedure using MacOrtho (Watkins, 2004) to assess the hierarchical factor structure by sequentially partitioning variance to the second- and first- order dimensions as recommended by Carroll (1993, 1995). Results showed that greater portions of total and common variance were accounted for by the second-order, global factor, but compared to other tests of intelligence CAS subtests measured less second-order variance and greater first-order Planning, Attention, Simultaneous, and Successive (PASS) factor variance.

Keywords: CAS, construct validity, hierarchical exploratory factor analysis, Schmid–Leiman higher-order analysis, structural validity

Support for PASS Scales

- "…compared to the WISC–IV, WAIS–IV, SB–5, RIAS, WASI, and WRIT, the CAS subtests had less variance apportioned to the higher-order general factor (g) and *greater proportions of variance apportioned to first-order (PASS…) factors*.
- This is consistent with the subtest selection and construction in an attempt to measure PASS dimensions linked to PASS theory … and neuropsychological theory (Luria)." (p. 311)

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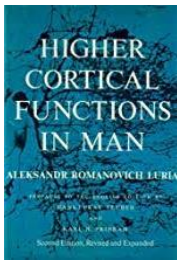
CAS2 Factor Analytic Study (in review 2024)

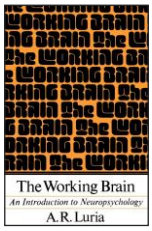
Unravelling the Multifaceted Nature of Intelligence: A Correlated Factor Model Approach with Insights from the PASS Theory

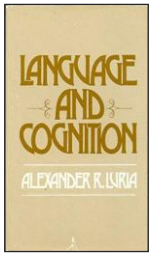
Papadopoulos, Spanoudis, Naglieri and Das concluded: **"Our results unambiguously support the notion that intelligence is not a unidimensional entity but a composite of distinct cognitive processes…Planning, Attention, Simultaneous and Successive processing."**

Abstract: …We tested g factor models, including unidimensional, correlated, higher-order, and bifactor symmetrical and asymmetrical models. To enhance the reliability and generalizability of the findings, we used a large and diverse cohort based on the PASS (Planning, Attention, Simultaneous, Successive) theory and the Cognitive Assessment System 2 (CAS2), which was standardized in the US. Results showed that the correlated factor model, which posits separate cognitive domains, offers the most fitting representation of intelligence. This outcome aligns with the PASS theory's theoretical foundations, emphasizing intelligence's multifaceted nature. …

PASS Neurocognitive Theory







- **P**lanning = THINKING ABOUT HOW YOU DO WHAT YOU DECIDE TO DO
- **A**ttention = FOCUSED THINKING AND RESISTANCE TO DISTRACTIONS
- **S**imultaneous = THINKING ABOUT HOW THINGS GO TOGETHER
- **S**uccessive = THINKING ABOUT THE SEQUENCE OF THINGS

PASS = 'basic psychological processes'

NOTE: Easy to understand concepts!

PASS Theory of Intelligence and the CAS2

JACK A. NAGLIERI & TULIO M. OTERO

TABLE OF CONTENTS

Free E-Book

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PASS Theory of Intelligence and the CAS2

www.JackNaglieri.com

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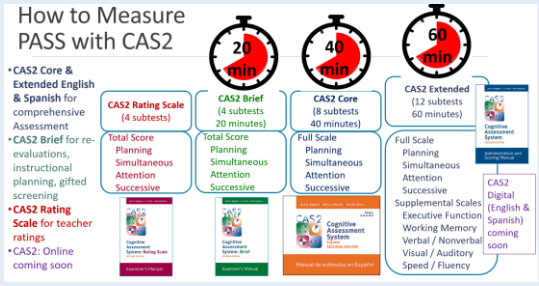
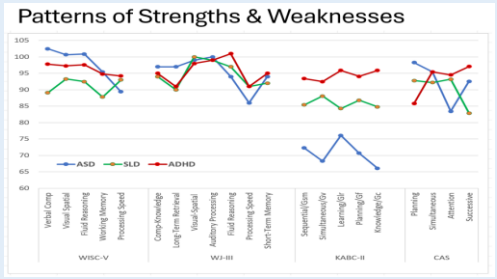
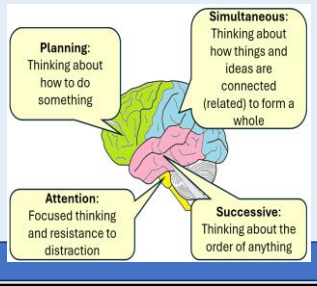
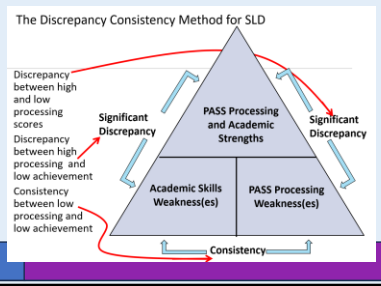
Intelligence Redefined as PASS Theory









	By Race	By Ethnicity
Tests that require knowledge	**Mn = 9.4**	**Mn =6.6**
Otis-Lennon School Ability Test	13.6	
Stanford-Binet IV (normative sample)	12.6	
WISC-V (normative sample)	11.6	
WJ- III (normative sample)	10.9	10.7
CogAT7 Nonverbal	11.8	7.6
CogAT7 - Verbal	6.6	5.3
CogAT7-Quantitative	5.6	3.6
CogAT- Nonverbal	6.4	2.9
CogAT-Total (V, Q & NV)	7.0	4.5
K-ABC II Fluid-Crystallized Index	9.4	9.8
K-ABC II Mental Processing Index	8.1	8.2
WISC-V (statistical controls)	8.7	
Tests that require minimal knowledge	**Mn = 4.3**	**Mn = 2.9**
K-ABC (normative sample)	7.0	
K-ABC (matched samples)	6.1	
KABC-II (adjusted for gender & SES)	6.7	5.4
CAS-2 (normative sample)	6.3	4.5
CAS (statistical control normative data)	4.8	4.8
CAS-2 (statistical control normative data)	4.3	1.8
CAS-2 Brief (normative samples)	2.0	2.8
NNAT (matched samples)	4.2	2.8
Naglieri General Ability Test-Verbal	2.2	1.6
Naglieri General Ability Test-Nonverbal	1.0	1.1
Naglieri General Ability Test-Quantitative	3.2	1.3

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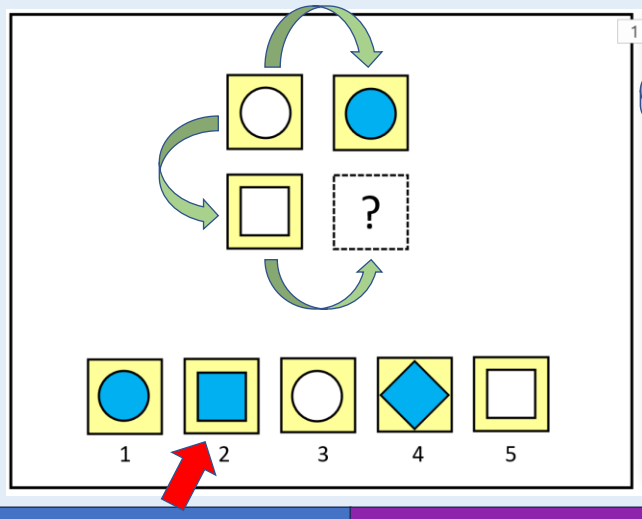
Tests that Measure Thinking or Knowing?



Girl is woman as boy is to man ?

3 is to 6 as 5 is to 10 ?

C^7 is to F as E^7 is to A ?

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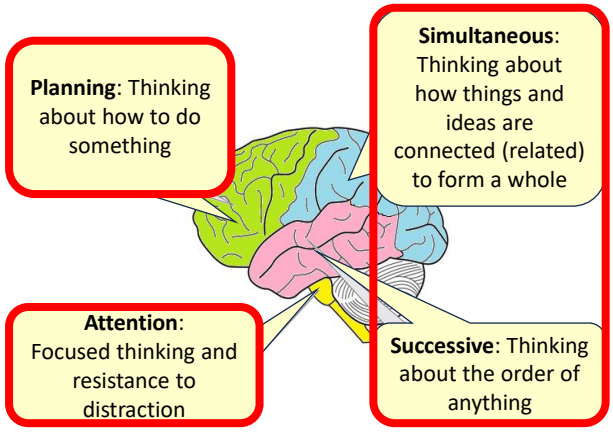
A Way to Understand Learning, Obstacles to Learning and Specific Learning Disabilities

- The first step is being alert and focused
- The second step is deciding how to achieve a goal
- The third step is applying different ways to solving various tasks



From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017 Figure 1.2 Functional Units from A. R. Luria

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PASS Theory: Planning

- **Planning** is a neurocognitive ability that a person uses to determine, select, and use efficient solutions to problems
  - problem solving
  - developing plans and using strategies
  - retrieval of knowledge
  - impulse control and self-control
  - control of processing
- Planning tests measure Executive Function

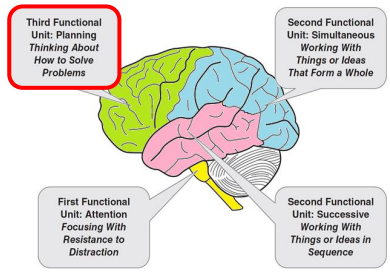
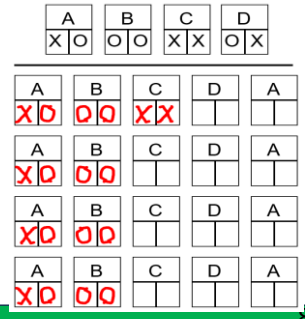


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017



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PASS Theory: Attention

- Attention is a basic psychological process we use to attend to some stimuli and ignore others
  - Focus our cognitive activity
  - Selective attention
  - Resistance to distraction
  - Listening, as opposed to hearing
- All academic tasks demand attention but some more than others

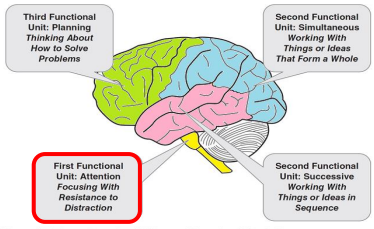

Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

RED	RED	BLUE
YELLOW	YELLOW	RED
BLUE	RED	YELLOW
BLUE	BLUE	BLUE

87

87

PASS Theory: Simultaneous

- **Simultaneous** processing is used to integrate stimuli into groups
  - Each piece must be related to the other
  - Stimuli are seen as a whole
- Academics:
  - Reading comprehension
  - geometry
  - math word problems
  - whole language
  - verbal concepts

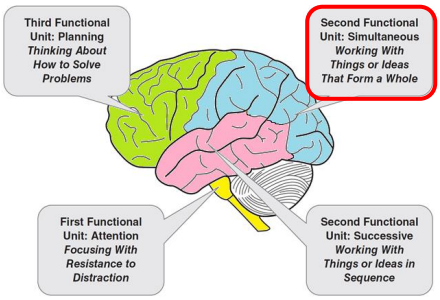

Figure 1.2 Three Functional Units and Associated Brain Structures

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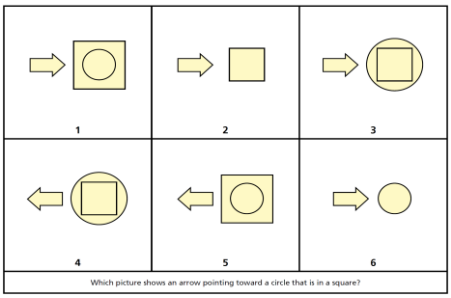

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PASS Theory: Successive

- **Successive** processing is a basic psychological process we use to manage stimuli in a specific serial order
  - Stimuli form a chain-like progression
  - Recall a series of words
  - Decoding words
  - Letter-sound correspondence
  - Phonological tasks
  - Understanding the syntax of sentences
  - Comprehension of written instructions

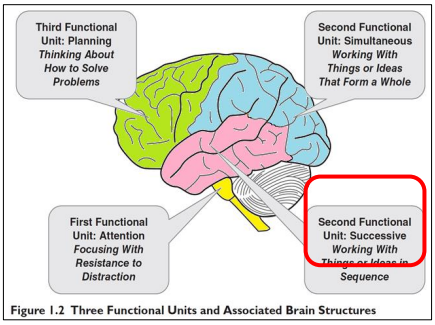
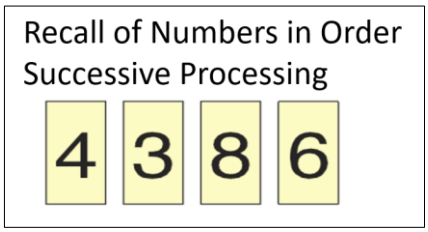


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017



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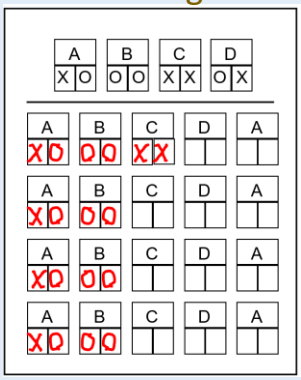
PASS Theory: Four Ways of Thinking and Learning

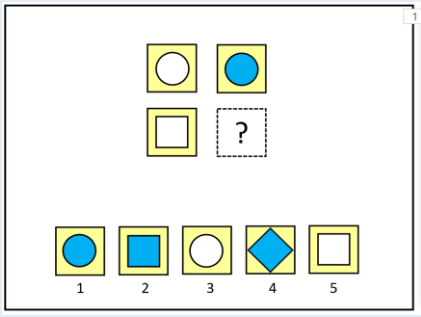
Planning



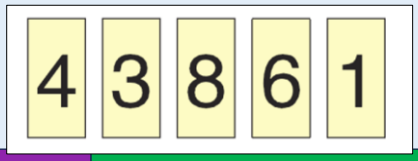
Attention

RED RED
YELLOW BLUE
YELLOW BLUE
RED

Simultaneous



Successive



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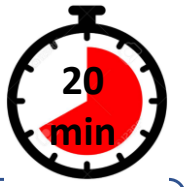
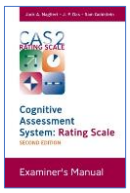
How to Measure PASS with CAS2

- **CAS2 Core & Extended English & Spanish** for comprehensive Assessment
- **CAS2 Brief** for re-evaluations, instructional planning, gifted screening
- **CAS2 Rating Scale** for teacher ratings
- CAS2: Online coming soon



CAS2 Rating Scale
(4 subtests)

Total Score
Planning
Simultaneous
Attention
Successive

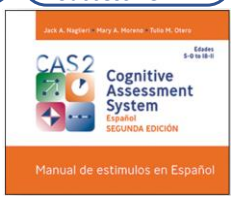


CAS2 Brief
(4 subtests
20 minutes)

Total Score
Planning
Simultaneous
Attention
Successive

CAS2 Core
(8 subtests
40 minutes)

Full Scale
Planning
Simultaneous
Attention
Successive



CAS2 Extended
(12 subtests
60 minutes)

Full Scale
Planning
Simultaneous
Attention
Successive
Supplemental Scales
Executive Function
Working Memory
Verbal / Nonverbal
Visual / Auditory
Speed / Fluency

CAS2 Digital (English & Spanish) coming in 2022

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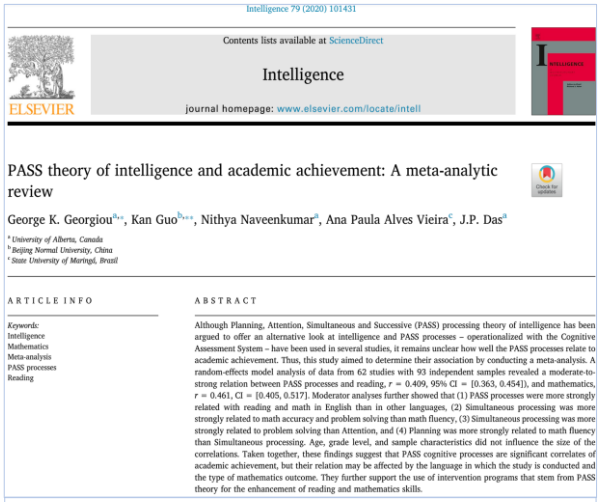

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PASS theory of intelligence and academic achievement: A meta-analytic review

George K. Georgiou[a,*], Kan Guo[b,**], Nithya Naveenkumar[a], Ana Paula Alves Vieira[c], J.P. Das[a]

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Keywords:
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Mathematics
Meta-analysis
PASS processes
Reading

ABSTRACT

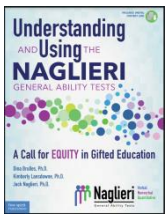
Although Planning, Attention, Simultaneous and Successive (PASS) processing theory of intelligence has been argued to offer an alternative look at intelligence and PASS processes – operationalized with the Cognitive Assessment System – have been used in several studies, it remains unclear how well the PASS processes relate to academic achievement. Thus, this study aimed to determine their association by conducting a meta-analysis. A random-effects model analysis of data from 62 studies with 93 independent samples revealed a moderate-to-strong relation between PASS processes and reading, $r = 0.409$, 95% CI = [0.363, 0.454]), and mathematics, $r = 0.461$, CI = [0.405, 0.517]. Moderator analyses further showed that (1) PASS processes were more strongly related with reading and math in English than in other languages, (2) Simultaneous processing was more strongly related to math accuracy and problem solving than math fluency, (3) Simultaneous processing was more strongly related to problem solving than Attention, and (4) Planning was more strongly related to math fluency than Simultaneous processing. Age, grade level, and sample characteristics did not influence the size of the correlations. Taken together, these findings suggest that PASS cognitive processes are significant correlates of academic achievement, but their relation may be affected by the language in which the study is conducted and the type of mathematics outcome. They further support the use of intervention programs that stem from PASS theory for the enhancement of reading and mathematics skills.

Georgiou, G., Guo, K., Naveenkumar, N., Vieira, A. P. A., & Das, J. P. (2020) PASS theory of intelligence and academic achievement: A meta-analytic review.

PASS Validity

- "The CAS Full Scale correlates **.60 with reading** and **.61 with mathematics**."
- "**These correlations are significantly stronger … than the correlations reported in previous meta-analysis for other measures of intelligence** (e.g., WISC) that require knowledge (e.g., Arithmetic & Vocabulary)…"
- "if we **conceptualize intelligence as … PASS processes … linked to the … brain**" it leads to **significantly higher relations with academic achievement…**and these processes have direct **implications for instruction and intervention**…"

Race and Ethnic Differences for *Traditional* and *Second-Generation* Intelligence Tests



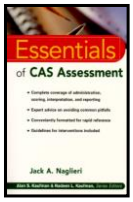
Note: Even though traditional intelligence tests may not show psychometric bias (Worrell, 2019) the large mean score differences suggest they are unfair (Brulles, et al., 2022).

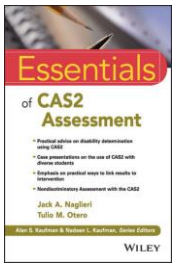
	By Race	By Ethnicity
Tests that require knowledge	**Mn = 9.4**	**Mn =6.6**
Otis-Lennon School Ability Test (district wide)	13.6	
Stanford-Binet IV (normative sample)	12.6	
WISC-V (normative sample)	11.6	
WJ- III (normative sample)	10.9	10.7
CogAT7 Nonverbal	11.8	7.6
CogAT7 - Verbal	6.6	5.3
CogAT7-Quantitative	5.6	3.6
CogAT- Nonverbal	6.4	2.9
CogAT-Total (V, Q & NV)	7.0	4.5
K-ABC II Fluid-Crystallized Index	9.4	9.8
K-ABC II Mental Processing Index	8.1	8.2
WISC-V (statistical controls)	8.7	
Tests that require minimal knowledge	**Mn = 4.3**	**Mn = 2.9**
K-ABC (normative sample)	7.0	
K-ABC (matched samples)	6.1	
KABC-II (adjusted for gender & SES)	6.7	5.4
CAS-2 (normative sample)	6.3	4.5
CAS (statistical control normative data)	4.8	4.8
CAS-2 (statistical control normative data)	4.3	1.8
CAS-2 Brief (normative samples)	2.0	2.8
NNAT (matched samples)	4.2	2.8
Naglieri General Ability Test-Verbal	2.2	1.6
Naglieri General Ability Test-Nonverbal	1.0	1.1
Naglieri General Ability Test-Quantitative	3.2	1.3

Note: The results summarized here were reported for the Otis-Lennon School Ability Test by Avant and O'Neal (1986); Stanford-Binet IV by Wasserman (2000); Woodcock-Johnson III race differences by Edwards and Oakland (2006) and ethnic differences by Sotelo-Dynega, Ortiz, Flanagan, and Chaplin (2013); CogAT7 by Carman, Walther and Bartsch (2018) and Lohman (2016), WISC-V by Kaufman, Raiford, and Coalson (2016); Kaufman Assessment Battery for Children-II by Lichtenberger, Volker, Kaufman & Kaufman, (2006) and Scheiber, C., Kaufman, A.S. Which of the Three KABC-II Global Scores is the Least Biased?. Journal of Pediatric Neuropsychology 1, 21–35 (2015); CAS by Naglieri, Rojahn, Matto, and Aquilino (2005); CAS-2 and CAS2:Brief by Naglieri, Das, and Goldstein, 2014a and 2014b; Naglieri Nonverbal Ability Test by Naglieri and Ronning (2000), and Naglieri General Ability Tests by Naglieri, Brulles, and Lansdowne (2022).

Discrepancy Consistency Method (DCM)

- …first introduced in 1999 and most recently in 2017





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Pattern of Strengths and Weaknesses Using the Discrepancy/Consistency Method for SLD Determination

Three methods for detecting a pattern of strengths and weaknesses (PSW) that can be used as part of the process of identifying a student with a specific learning disability (SLD) have been suggested by Naglieri in 1999, Hale and Fiorello in 2004, and by Flanagan, Ortiz, and Alfonso in 2007. These authors share the same goal: to present a procedure to detect a PSW in scores that can be used to identify an SLD (sometimes referred to as a third option; Zirkel & Thomas, 2010). Despite differences in the composition of the scores used and the definitions of what constitutes a basic psychological process, these methods all rely on finding a combination of differences as well as similarities in scores across academic and cognitive tests. Our approach to operationalizing a PSW is called the Discrepancy/Consistency Method (DCM) for the identification of SLD. Determining SLD is essentially based on the combination of PASS and achievement test scores. The method involves a systematic examination of variability of PASS and academic achievement test scores, which has two main ingredients. First, there must be evidence of a PASS cognitive weakness as described in Step 1 of this chapter, and, second, achievement test scores should show substantial variability that aligns with the high and low PASS scores. What

DON'T FORGET 3.5

The essence of the Discrepancy/Consistency Method is two discrepancies and one consistency.

Discrepancy 1:
Significant variability among the PASS scores indicating a weakness in one or more of the basic psychological processes

Discrepancy 2:
Significant difference between high PASS scores and low achievement test scores

Consistency:
No significant difference between low PASS scores and low achievement

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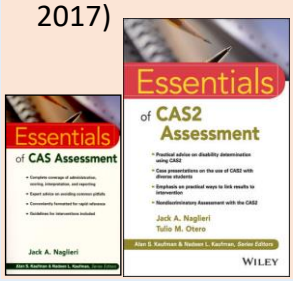
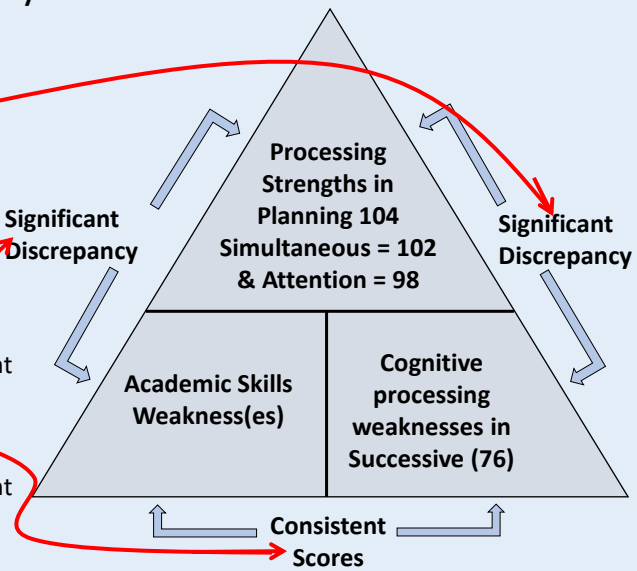
Answering the Question: Why the student fails?

- The Discrepancy Consistency Method (DCM) was first introduced in 1999 (most recently in 2017)



- Discrepancy between high and low processing scores
- Discrepancy between high processing and low achievement
- Consistency between low processing and low achievement



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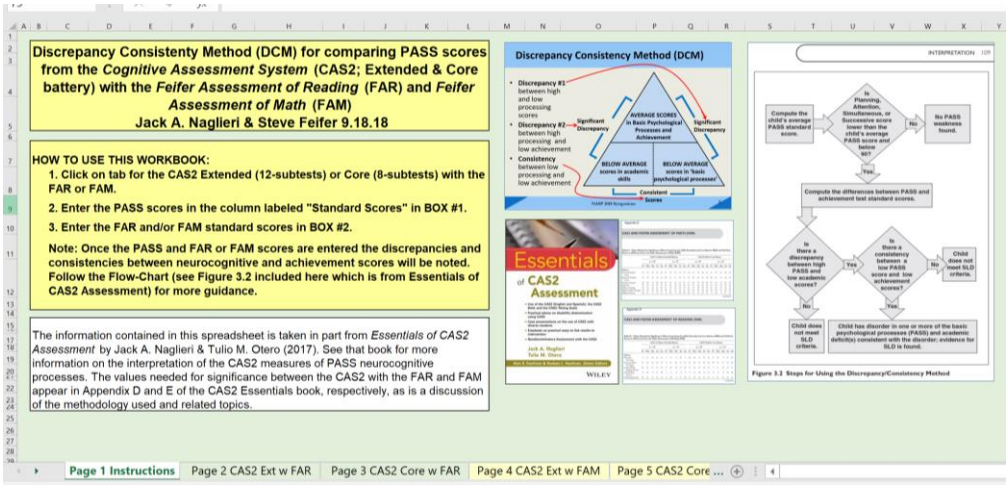
FREE CAS2 PSW Analyzer for FAR, FAM, & FAW, WJ4, KTEA3, WIAT4



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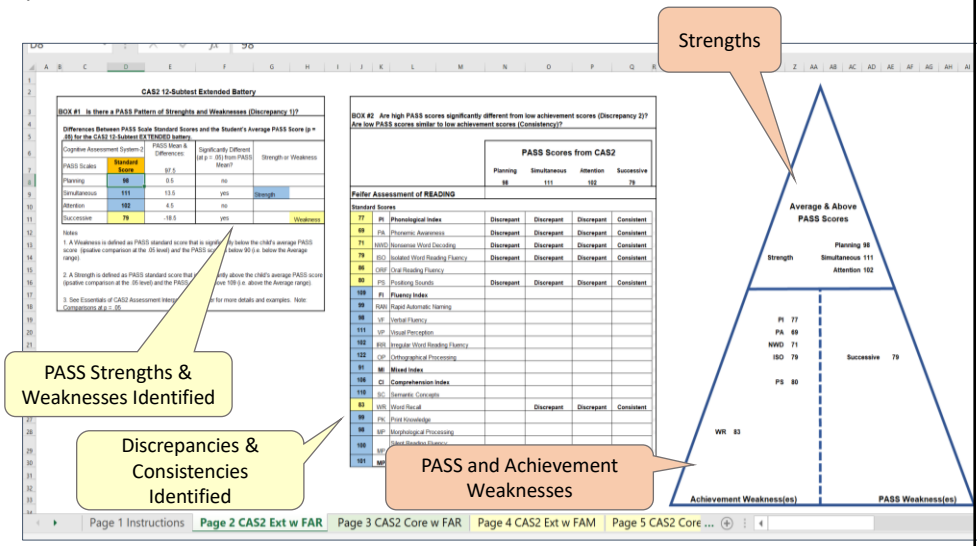
CAS2 PSW Analyzer for WJ4, KTEA3, FAR, FAM

- Enter PASS and Achievement test standard scores and all comparisons are evaluated for statistical significance of the differences



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Gifted Students Neurocognitive Profiles

(2022)

- N = 142
  - Similar numbers of girls and boys in Grade 4, 5 and 6.
  - all native speakers of English
  - from middle to upper-middle socioeconomic families
- Gifted definition:
  - "Giftedness is exceptional potential and/or performance across a wide range of abilities in one or more of the following areas: general intellectual, specific academic, creative thinking, social, musical, artistic and kinesthetic" (Alberta Education, 2012, p. 6).
- Tests given
  - WASI –II (Vocabulary and Matrix Reasoning)
  - Woodcock-Johnson III Broad Reading score from: Letter-Word Identification, Reading Fluency, and Passage Comprehension
  - Cognitive Assessment System (CAS; Naglieri & Das, 1997) to measure PASS neurocognitive processes

Exceptionality Education International
2022, Vol.32, No. 1, pp. 1-13

Neurocognitive Profiles of Children With High Intellectual Ability: A Pilot Study

George K. Georgiou and Kristy Dunn
University of Alberta
Jack Naglieri
University of Virginia

Abstract

A common question among teachers of students with high intellectual ability is how to best teach this group of children. To answer this question, it is first necessary to better understand their cognitive profiles. Thus, the primary goal of this study was to examine the neurocognitive profiles of children with high intellectual ability. To do this, we used the Discrepancy Consistency Model (Naglieri, 1999), which allows researchers to detect patterns of cognitive strengths and weaknesses. One hundred forty-two children with high intellectual ability (70 females, 72 males; M_{age} = 127.41 months; SD = 10.76) from Grades 4, 5, and 6 were assessed on measures of general intelligence and academic achievement, as well as on measures of Planning, Attention, Simultaneous, and Successive (PASS) processes. Results showed that 54% of the sample had a PASS score that was significantly lower than that of each student's average PASS score. Only 8% of the students had a PASS disorder (a score that was low in relation to the student's average and below 90). Further, 4% of our sample had both a PASS disorder and an academic-skills disorder. The findings suggest that students with high intellectual ability can show variability in PASS scores that may have relevance for instructional programming and for identifying twice-exceptional children.

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A Study of Gifted Students

- 54% of gifted students had a **PASS weakness and 63% had a strength relative to that student's average PASS score**
  - That means the students has a specific neurocognitive processing strength or weakness (i.e., learning profile)

Table 3.

Percentages of Gifted Students with Significant Variability in PASS Standard Scores (N = 142).

		Planning	Simultaneous	Attention	Successive	PASS
PASS Weakness	n	25	6	18	28	77
	%	18%	4%	13%	20%	54%
PASS Strength	n	7	58	13	12	90
	%	5%	41%	9%	8%	63%

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A Study of Gifted Students

- 4% of the **students identified as GIFTED have a weakness in a PASS 'basic psychology processes' AND an achievement test score below 90.**

Percentages of Gifted Students with Significant Variability in PASS and Achievement Test Scores (N = 142).

		Planning	Simultaneous	Attention	Successive	PASS
PASS <90	n	4	0	4	4	12
	%	3%	0%	3%	3%	8%
PASS & Skills <90	n	3	0	2	1	6
	%	2%	0%	1%	1%	4%

These students have a specific PASS processing weakness less than 90; suggesting **instructional modifications**

These students with low PASS scores AND low WJ-III achievement suggests a **Specific Learning Disability**

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100

RESEARCH ARTICLE WILEY

PASS neurocognitive assessment of children with autism spectrum disorder

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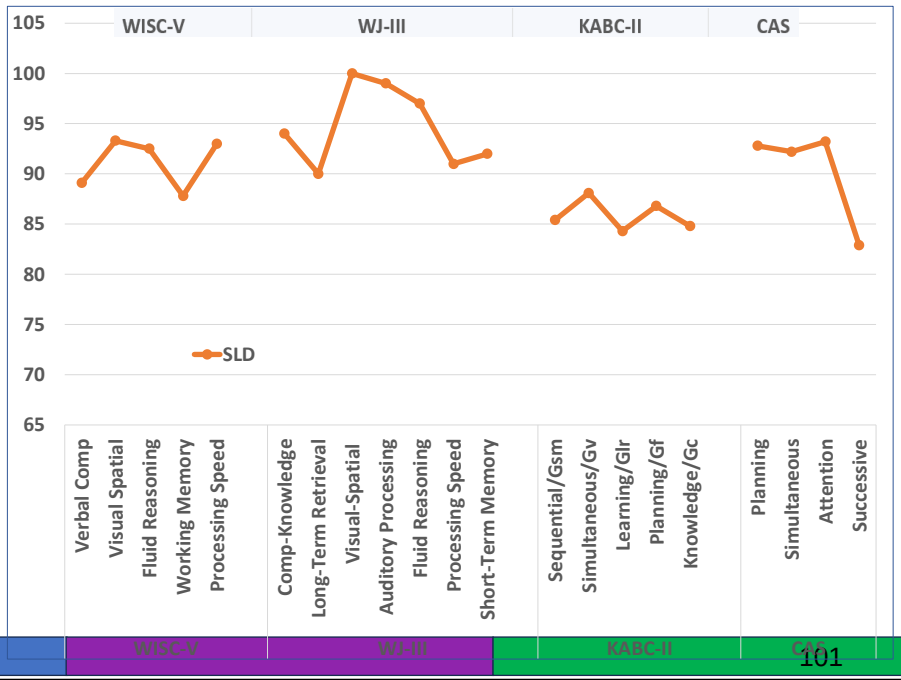
[1]School of Behavioral Sciences, California Southern University, Costa Mesa, California, USA
[2]Department of Psychology, University of Virginia, Charlottesville, Virginia, USA

Abstract

Autism spectrum disorder (ASD) is a neurodevelopmental disability that can cause significant social, communication, and behavioral challenges yet it is defined and diagnosed by

Intelligence and PASS Cognitive Processing Test Profiles for students with **Dyslexia, ADHD & ASD**



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ADHD

Why measure "basic psychological processes"

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Gifted & ADHD

- Twice exceptional, or 2E, refers to intellectually gifted children who have a specific learning disability (e.g., dyslexia), **Attention Deficit Hyperactivity Disorder (ADHD)**, or autism spectrum disorder (ASD).
  - ADHD diagnosis is based on observable behaviors
  - Three types of ADHD are Inattentive, Hyperactive / Impulsive and Combined Type

DSM-5 Diagnostic Criteria for ADHD

Symptoms and/or behaviors that have persisted ≥ 6 months in ≥ 2 settings (e.g., school, home, church). Symptoms have negatively impacted academic, social, and/or occupational functioning. In patients aged < 17 years, ≥ 6 symptoms are necessary; in those aged ≥ 17 years, ≥ 5 symptoms are necessary.	
Inattentive Type Diagnosis Criteria	• Displays poor listening skills • Loses and/or misplaces items needed to complete activities or tasks • Sidetracked by external or unimportant stimuli • Forgets daily activities • Diminished attention span • Lacks ability to complete schoolwork and other assignments or to follow instructions • Avoids or is disinclined to begin homework or activities requiring concentration • Fails to focus on details and/or makes thoughtless mistakes in schoolwork or assignments
Hyperactive/ Impulsive Type Diagnosis Criteria	**Hyperactive Symptoms:** • Squirms when seated or fidgets with feet/hands • Marked restlessness that is difficult to control • Appears to be driven by "a motor" or is often "on the go" • Lacks ability to play and engage in leisure activities in a quiet manner • Incapable of staying seated in class • Overly talkative **Impulsive Symptoms:** • Difficulty waiting turn • Interrupts or intrudes into conversations and activities of others • Impulsively blurts out answers before questions completed
Additional Requirements for Diagnosis	• Symptoms present prior to age 12 years • Symptoms not better accounted for by a different psychiatric disorder (e.g., mood disorder, anxiety disorder) and do not occur exclusively during a psychotic disorder (e.g., schizophrenia) • Symptoms not exclusively a manifestation of oppositional behavior
Classification	***Combined Type:*** • Patient meets both inattentive and hyperactive/impulsive criteria for the past 6 months ***Predominantly Inattentive Type:*** • Patient meets inattentive criterion, but not hyperactive/impulse criterion, for the past 6 months ***Predominantly Hyperactive/Impulsive Type:*** • Patient meets hyperactive/impulse criterion, but not inattentive criterion, for the past 6 months Symptoms may be classified as mild, moderate, or severe based on symptom severity

Source: DSM-5 Diagnostic and Statistical Manual of Mental Disorders, 5th edition; ADHD: attention deficit hyperactivity disorder

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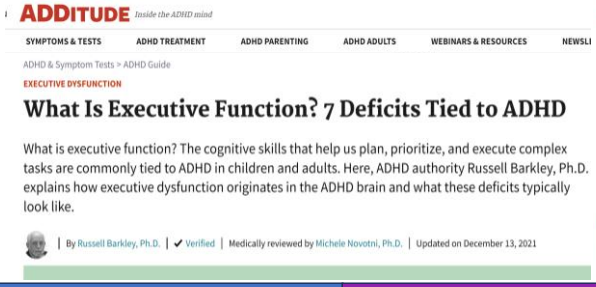
ADHD & Executive Function – Russell Barkley

- ADHD is diagnosed by examination of behaviors
- BUT these behaviors are a reflection of a COGNITIVE PROCESSING disorder– specifically the concept of EXECUTIVE FUNCTION associated with the FRONTAL LOBES



ADDITUDE *Inside the ADHD mind*

SYMPTOMS & TESTS | ADHD TREATMENT | ADHD PARENTING | ADHD ADULTS | WEBINARS & RESOURCES | NEWSLI

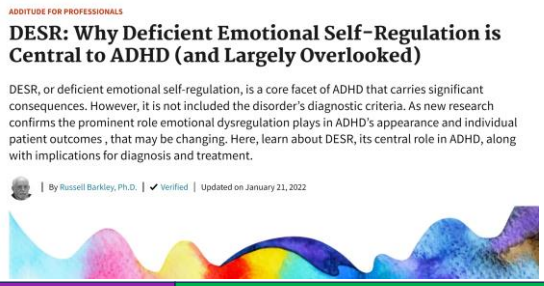
ADHD & Symptom Tests > ADHD Guide

EXECUTIVE DYSFUNCTION

What Is Executive Function? 7 Deficits Tied to ADHD

What is executive function? The cognitive skills that help us plan, prioritize, and execute complex tasks are commonly tied to ADHD in children and adults. Here, ADHD authority Russell Barkley, Ph.D. explains how executive dysfunction originates in the ADHD brain and what these deficits typically look like.

By Russell Barkley, Ph.D. | ✔ Verified | Medically reviewed by Michele Novotni, Ph.D. | Updated on December 13, 2021



ADDITUDE FOR PROFESSIONALS

DESR: Why Deficient Emotional Self-Regulation is Central to ADHD (and Largely Overlooked)

DESR, or deficient emotional self-regulation, is a core facet of ADHD that carries significant consequences. However, it is not included the disorder's diagnostic criteria. As new research confirms the prominent role emotional dysregulation plays in ADHD's appearance and individual patient outcomes , that may be changing. Here, learn about DESR, its central role in ADHD, along with implications for diagnosis and treatment.

By Russell Barkley, Ph.D. | ✔ Verified | Updated on January 21, 2022

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CAS2

- Supplementary Scale Executive Function

Behaviors related to Cognition (CEFI)	Behaviors related to Social-Emotional Skills	Academic and job skills
Neurocognitive Ability is the foundation (CAS2)		

Supplemental Composite Scores

Subtest	Scaled Score				
	EF w/o WM	EF w/ WM	WM	VC	NvC
Planned Codes					7
Planned Connections	8	8			
Matrices					10
Verbal-Spatial Relations		11	11	11	
Figure Memory					10
Expressive Attention	9	9			
Receptive Attention				9	
Sentence Repetition/Questions		7	7	7	
	EF w/o WM	EF w/ WM	WM	VC	NvC
Sum of Subtest Scaled Scores	17	35	18	27	27
Composite Index Scores	91	91	94	93	92
Percentile Rank	27	27	34	32	30
Upper ____% Confidence Interval	101	99	101	101	99
Lower	84	85	88	87	86

Note: EF w/o WM = Executive Function without Working Memory; EF w/WM = Executive Function with Working Memory; WM = Working Memory; VC = Verbal Content; NvC = Nonverbal Content.

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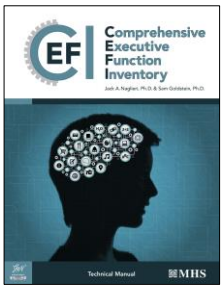
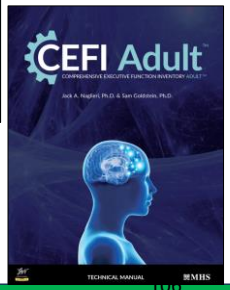
CEFI and the CEFI Adult

- **Strength based** EF measures
- Items are **positively** worded
- Higher scores = **good** behaviors related to EF
- Scores set at mean of **100**, SD of **15**
- CEFI: Ages 5-18 years rated by a parent, teacher, or the child/youth
- CEFI Adult: Ages 18+ years rated by the adult or an observer





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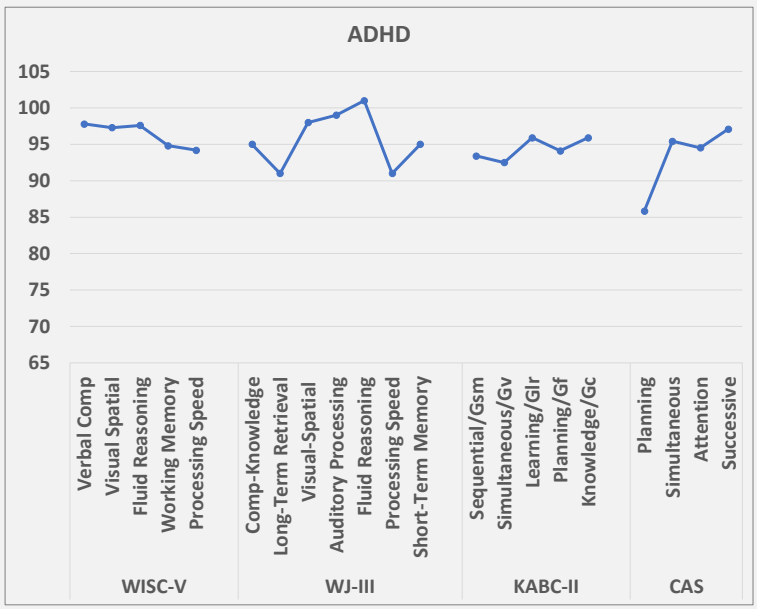
Intelligence and Cognitive Processing Tests' Profiles for Students with **ADHD**

PASS Profile reveals Planning processing weakness



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RESEARCH ARTICLE

WILEY

PASS neurocognitive assessment of children with autism spectrum disorder

Tulio M. Otero[1] | Jack A. Naglieri[2]

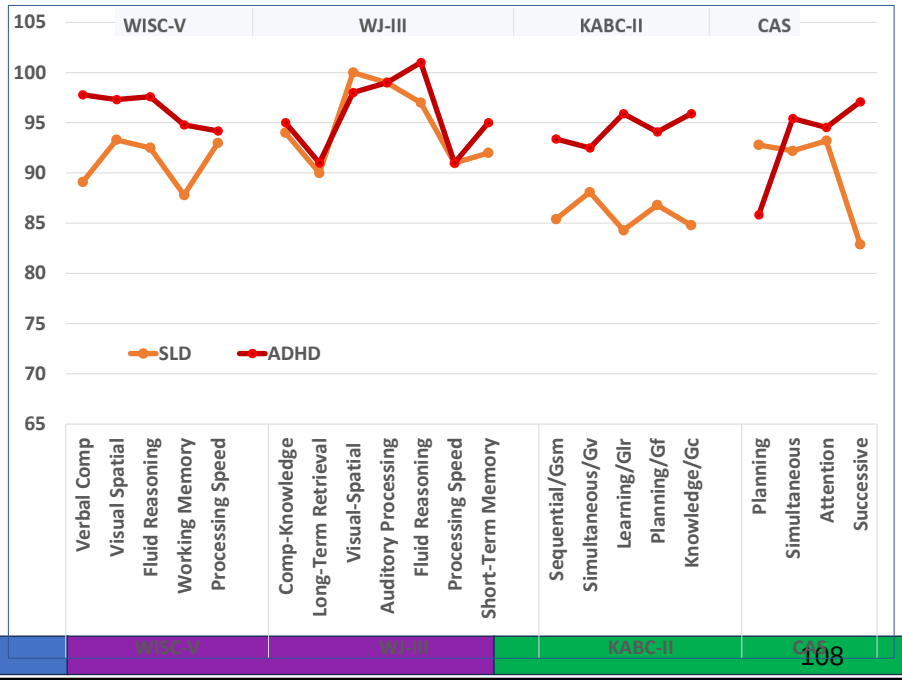
[1]School of Behavioral Sciences, California Southern University, Costa Mesa, California, USA

[2]Department of Psychology, University of Virginia, Charlottesville, Virginia, USA

Abstract

Autism spectrum disorder (ASD) is a neurodevelopmental disability that can cause significant social, communication, and behavioral challenges yet it is defined and diagnosed by

Intelligence and PASS Cognitive Processing Test Profiles for students with **Dyslexia, ADHD & ASD**



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Autism Assessment

Is there a cognitive processing (PASS) component?

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Gifted Students with Disabilities

- Twice exceptional, or 2E, refers to intellectually gifted children who have a specific learning disability (e.g., dyslexia), Attention Deficit Hyperactivity Disorder (ADHD), or **autism spectrum disorder** (ASD).
  - ASD is identified using the DSM based on observable behaviors
  - Rating scales such as ASRS

DSM-5 Autism Diagnostic Criteria

A. Persistent deficits in social communication and social interaction across multiple contexts,
B. Restricted, repetitive patterns of behavior, interests, or activities,
C. Symptoms must be present in the early developmental period
D. Symptoms cause clinically significant impairment in social, occupational, or other
E. These disturbances are not better explained by intellectual disability

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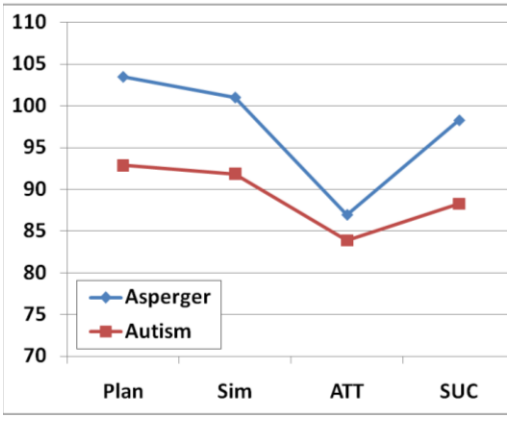
PASS Scores, Autism and Asperger



Descriptive Statistics and Comparisons Between Individuals with Autism (n = 20) and Asperger Syndrome (n = 23).

		Mn	*SD*	*F*	Sig	*d*-ratio
PLAN	Asperger	103.5	31.6	1.71	.20	0.40
	Autism	92.9	19.2			
SIM	Asperger	101.0	15.3	3.33	.08	0.54
	Autism	91.9	17.5			
ATT	Asperger	86.9	17.7	0.30	.59	0.17
	Autism	83.9	18.8			
SUC	Asperger	98.3	15.7	2.46	.12	0.47
	Autism	88.3	25.6			

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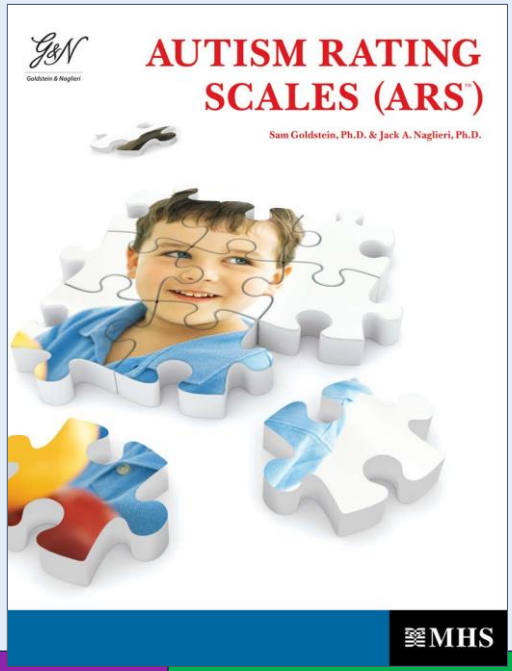
ASD Assessment

- Using the ASRS to evaluate the BEHAVIORS related to the diagnosis of ASD is important, but so too is the evaluation of PASS scores that can also reveal a COGNITIVE PROCESSING weakness or strength
- Using both provides a more complete view of a person



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RESEARCH ARTICLE WILEY

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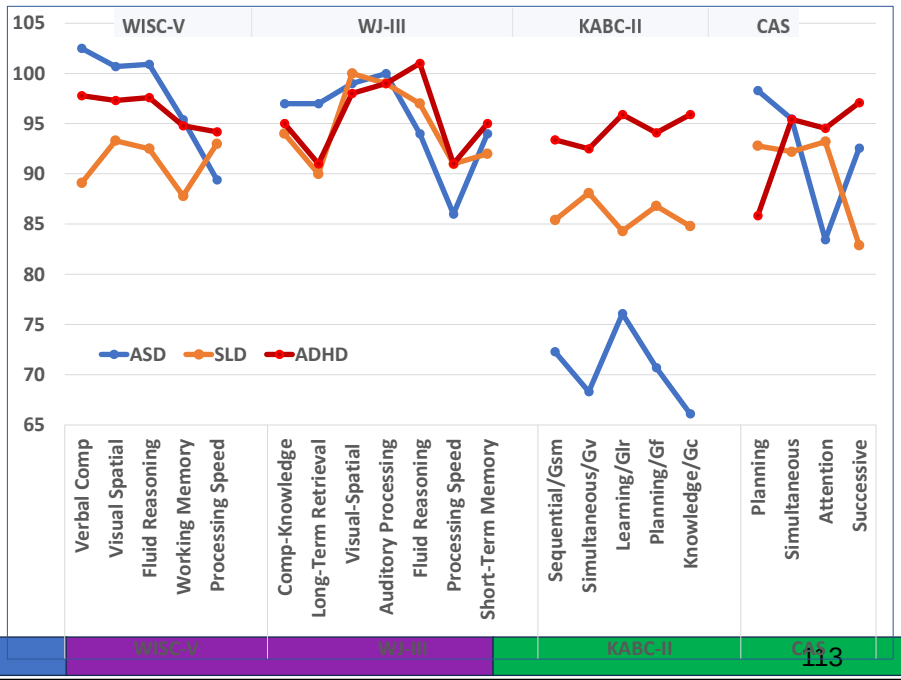

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Time for final Thoughts, Questions and Answers

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We do the best we can with what we know, and when we know better, we do better.

— Maya Angelou —

Change Demands Courage to Think Differently

The Naglieri General Ability Tests and the Cognitive Assessment System-Second Edition were designed to advance the science of intellectual assessment

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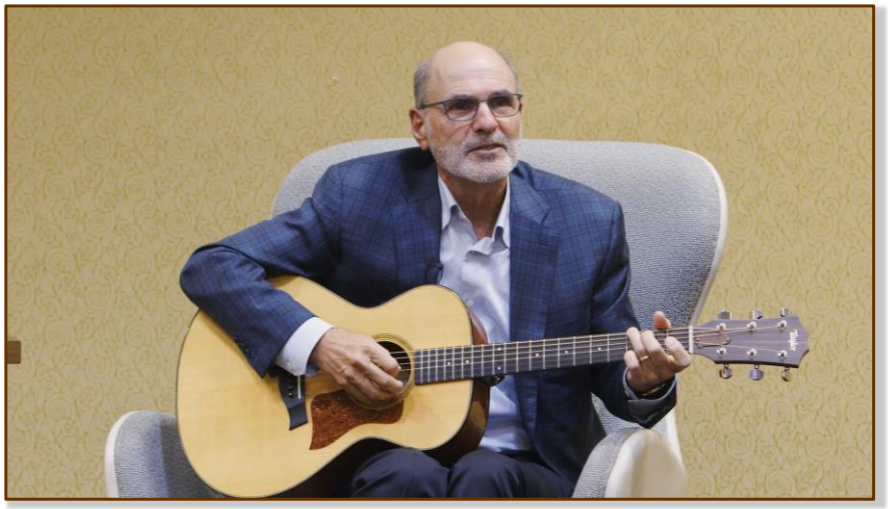
Maybe It's Time to Let the Old Ways Die



Thank You !

NYASP 2022 Legends in School Psychology Award Interview

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