Achieve Equitable Identification using Universal Assessment and Local Norms and the Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative

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NAGC 24
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SEATTLE, WASHINGTON

Naglieri
Verbal
Nonverbal
Quantitative
General Ability Tests

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FOR MORE INFORMATION PLEASE GO TO MY WEB PAGES

Naglieri
Verbal
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Quantitative
General Ability Tests

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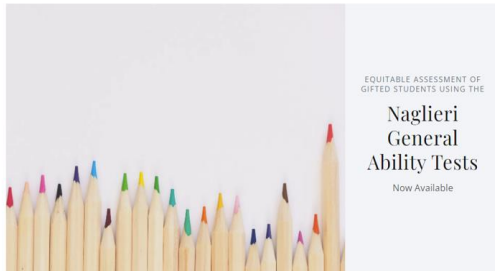
EQUITABLE ASSESSMENT OF
GIFTED STUDENTS USING THE

Naglieri
General
Ability Tests

Now Available

WHY WE DO WHAT WE DO

Inequity in Gifted Testing

Recently researchers have estimated that more than 850,000 African-American, Hispanic, and Native American students in K-12 public school today could have been identified for gifted programs but were not. This problem could be addressed by using ability tests that were designed and validated to be equitable for all students.

Achieving Equity

The *Naglieri General Ability Tests* by Jack A. Naglieri, PhD, Dina M. Brulles, PhD and Kimberly Lansdowne, PhD were explicitly developed to address the need for equitable assessment of gifted students from diverse cultural, linguistic, and socioeconomic backgrounds so they can receive educational opportunities appropriate for their ability.

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JACKNAGLIERI.COM
TOOLS FOR PSYCHOLOGICAL AND EDUCATIONAL ASSESSMENT

WELCOME TO JACKNAGLIERI.COM

This site was created to provide tools and resources for both psychologists and educators alike.

Jack A. Naglieri, PhD, has held faculty appointments at Northern Arizona University, The Ohio State University, and George Mason University. He is currently a Research Professor at the University of Virginia, Senior Research Scientist at the Devereux Center for Resilient Children, and Emeritus Professor of Psychology at George Mason University.

Dr. Naglieri has developed many tests used by psychologists and educators such as the Naglieri Nonverbal Ability Test, the Cognitive Assessment System, Autism Spectrum Rating Scale, Devereux Student Strength Assessment, Comprehensive Executive Function Inventory, and forthcoming Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative. He is widely known for his efforts to increase participation of traditionally under-represented students in gifted education. He is also well known for the PASS Theory of Intelligence and its application using the CAS2 for identification of specific learning disabilities using the Discrepancy Consistency Method, fair and equitable assessment of diverse populations, and academic interventions related to PASS neurocognitive processes.

NAGLIERI GENERAL ABILITY TESTS: VERBAL, NONVERBAL AND QUANTITATIVE

HANDOUTS

WEBINARS

The *Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative* provide equitable assessment of students for gifted educational programs.

Download PDF handouts of past presentations and related research on the following tests and topics

A webinar library that covers a variety of topics such as EF, Autism Assessment, and SLD. We have created this library to share and learn from each other while staying home and safe.

EQUITY

EXECUTIVE FUNCTION

HELPING CHILDREN LEARN

xx this section provides information about equity in the CAS and equity in gifted assessment, GNAT

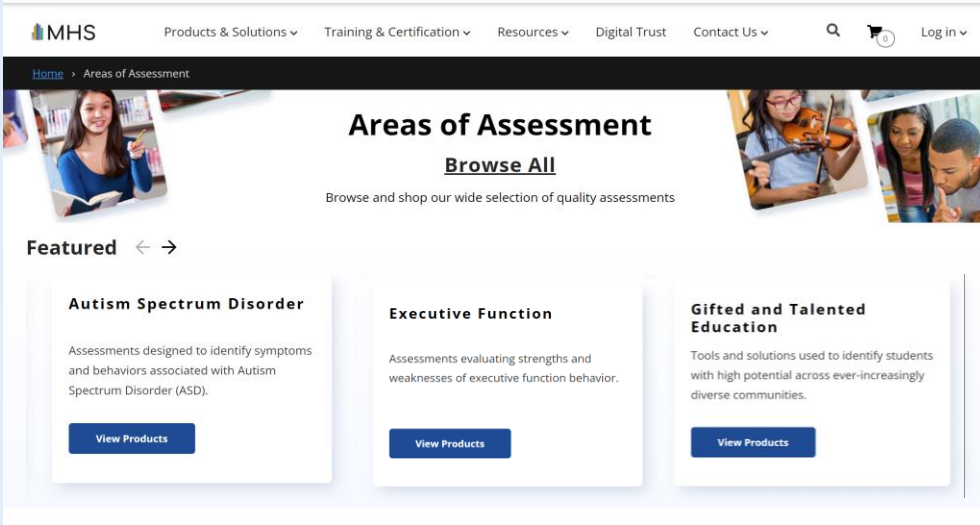xxx Comprehensive examination at executive function, its measurement, and intervention.

Helping Children Learn was written to give parents and teachers simple ways to make learning fun and easy for any child. Handouts

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1. Why are we here?
2. What did we discover?
3. What solution did we create?

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Clarification of Terms

Gifted ✤ Very Smart

Talented ✤ Very Accomplished

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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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A Few Differences Between a…
Bright Child   &   Gifted Child

Bright Child	Gifted Child
Knows the answer	Asks questions
Is interested	Is highly curious
Works hard	Plays around, yet tests well
Answers the questions	Discusses in detail, elaborates
Top of the group	Beyond the group
Learns with ease	Already knows
Understands ideas	Constructs abstractions
6-8 Repetitions for mastery	1-2 Repetitions for mastery
Grasps the meaning	Draws inferences
Completes the assignments	Initiates projects
Is receptive	Is intense
Copies accurately	Creates a new design
Enjoys school	Enjoys learning [7]
Enjoys straightforward, sequential learning	Thrives on complexity

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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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General Ability

General ability is what allows us to solve many different kinds of problems which may involve

- *reasoning, memory, sequencing, verbal and math skills, patterning, connecting ideas across content areas, insights, making connections, drawing inferences, analyzing simple and complex ideas.*

The key is to measure general ability in a way that is not confounded by knowledge

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1. Why are we here?
2. What did we discover?
3. What solution did we create?

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Did you know...

- The origin of the most widely used intelligence tests?
- That the most widely used group and individual intelligence tests measure vocabulary knowledge and include Arithmetic word problems like those found on achievement tests?
- Does that feel right?

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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
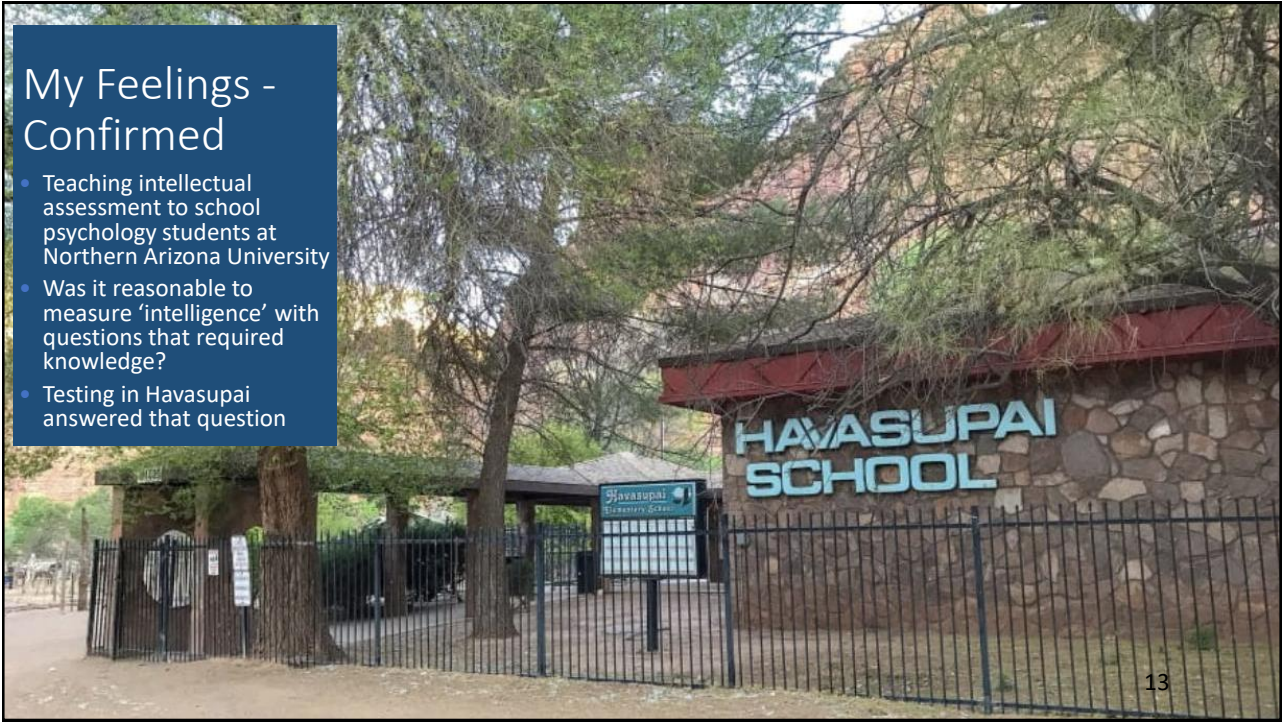
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1981

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.
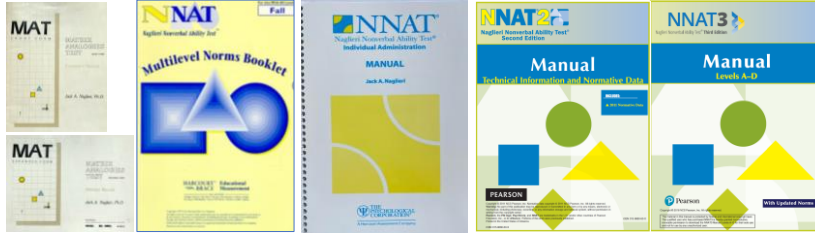

Naglieri, J. A. (1982). Does the WISC-R measure verbal intelligence for non-English speaking children? *Psychology in the Schools, 19*, 478-479.

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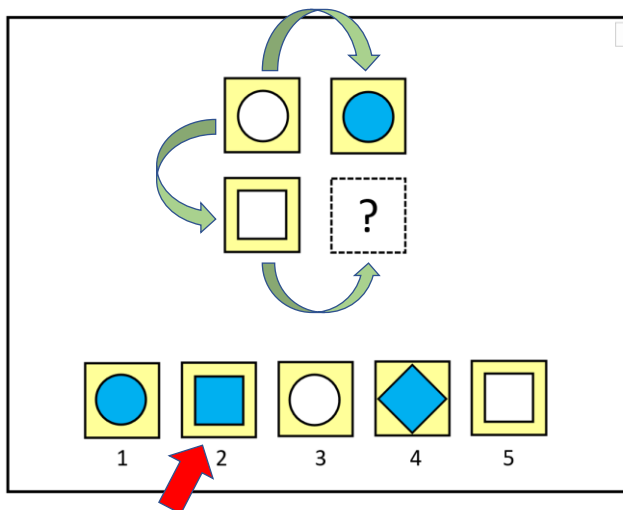
Each of these versions of the NNAT showed similar scores by RACE, ETHNICITY, & SEX and had strong correlation with achievement

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*

I know that!

How does the student have to think to complete a task?
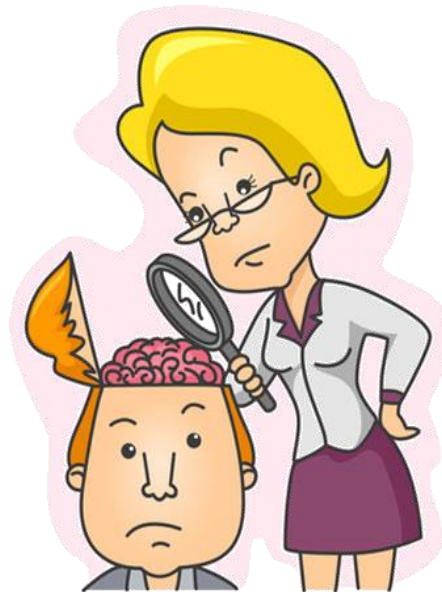
- This is dependent **seeing how ideas or things are related to one another** and some tasks just demand remembering

I see the relationships!

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Why do we measure intelligence the way we do?

The History of IQ tests

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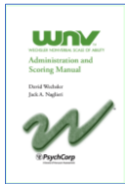## Binet➔ Stanford-Binet ➔ Army Mental Tests ➔ WISC, CogAT, Olsat

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

A. Binet

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'.

L. Terman

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

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

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Alpha & Beta ➔ Wechsler

ARMY MENTAL TESTS

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

Verbal & Quantitative IQ (Knowledge)

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

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)"
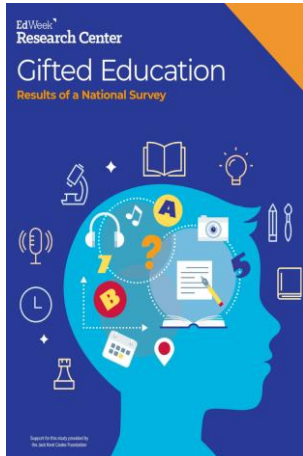
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Knowledge is Included in "Ability" Tests

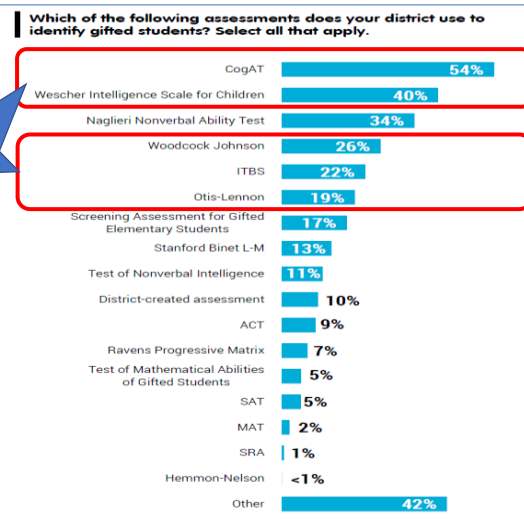| Stanford-Binet-5	WISC-V	WJ-IV	KABC-II	OLSAT	CogAT
• Verbal • Knowledge • Quantitative Reasoning • Vocabulary • Verbal Analogies	• Verbal Comprehension Vocabulary, Similarities, Information & Comprehension • Fluid Reasoning Figure Weights, Arithmetic	• Comprehension Knowledge: Vocabulary & General Information • 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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National Survey of Gifted Education

These tests have verbal and quantitative questions and lengthy verbal directions

Which of the following assessments does your district use to identify gifted students? Select all that apply.

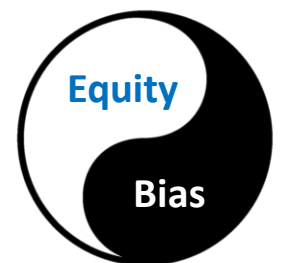| Assessment	Percent
CogAT	54%
Wescher Intelligence Scale for Children	40%
Naglieri Nonverbal Ability Test	34%
Woodcock Johnson	26%
ITBS	22%
Otis-Lennon	19%
Screening Assessment for Gifted Elementary Students	17%
Stanford Binet L-M	13%
Test of Nonverbal Intelligence	11%
District-created assessment	10%
ACT	9%
Ravens Progressive Matrix	7%
Test of Mathematical Abilities of Gifted Students	5%
SAT	5%
MAT	2%
SRA	1%
Hemmon-Nelson	<1%
Other	42%

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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.
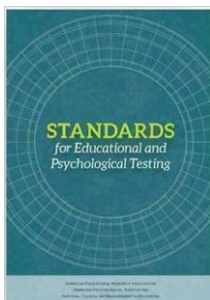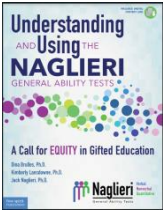

- … **if a person has had limited opportunities to learn the content in a test of intelligence,** *that test may be considered unfair* (because it penalizes students for not knowing the answers) **even if there is no evidence of psychometric test bias.**
- Evidence of EQUITY is examined by test content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

Equity

Bias

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Slide 25

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

Understanding AND Using THE **NAGLIERI** GENERAL ABILITY TESTS

A Call for EQUITY in Gifted Education

Gina Bralles, Ph.D.
Kimberly Lansdowne, Ph.D.
Jack Naglieri, Ph.D.

Naglieri

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

|	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

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

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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

Understanding AND Using THE NAGLIERI GENERAL ABILITY TESTS

A Call for EQUITY in Gifted Education

SYSTEM FAILURE

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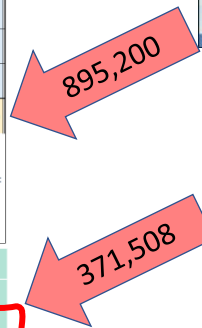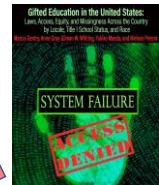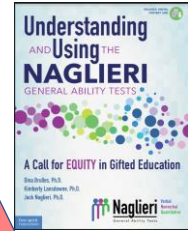
1,266,708 Students Missed Would Connect Denver to San Francisco !

Each Image = 20,000
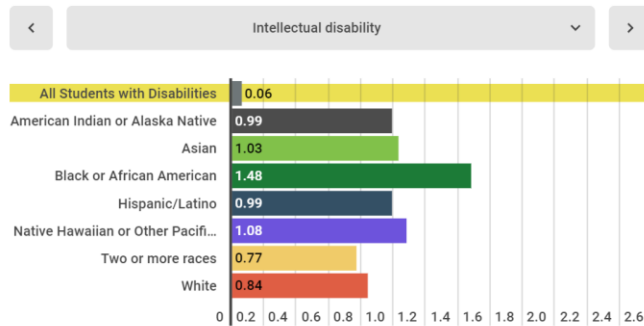
1,100 miles

San Francisco · Denver

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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

<   Intellectual disability   ∨   >

Category	Risk Ratio
All Students with Disabilities	0.06
American Indian or Alaska Native	0.99
Asian	1.03
Black or African American	1.48
Hispanic/Latino	0.99
Native Hawaiian or Other Pacifi...	1.08
Two or more races	0.77
White	0.84

0 | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.6

> 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/

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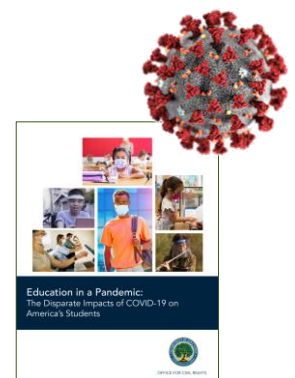
Education in a Pandemic: The Disparate Impacts of COVID-19 on America's Students. US Dept. of Ed- Office of Civil Rights. June, 21, 2021. https://www2.ed.gov/about/offices/list/ocr/docs/20210608-impacts-of-covid19.p

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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

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Time for your Thoughts and Questions

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1. Why are we here?
2. What did we discover?
3. What solution did we create?

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Reducing Under-representation of Minority Children in Gifted Education –
SENG 2004 Washington DC

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conclusions

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The Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative

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Learn More
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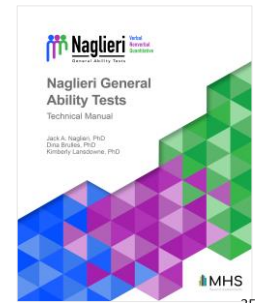
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2016 – 2022 Developmental Process

Naglieri General Ability Tests

- 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*.
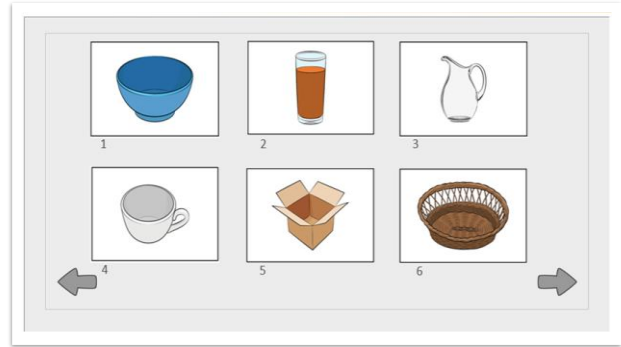
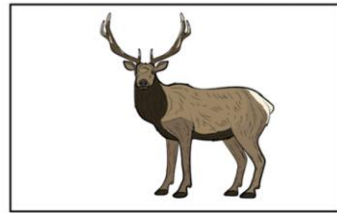*Naglieri General Ability Test – Verbal (Naglieri & Brulles)*

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Verbal

1st Gr. Easy

1

2

3

4

5

6

Naglieri | Verbal

39
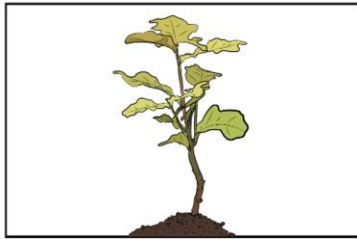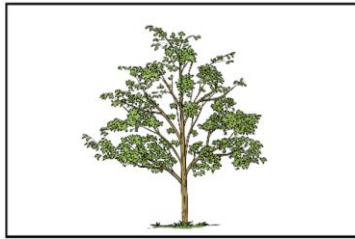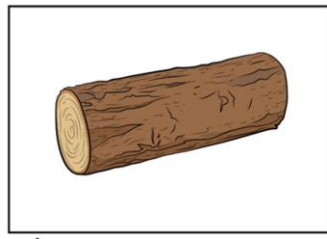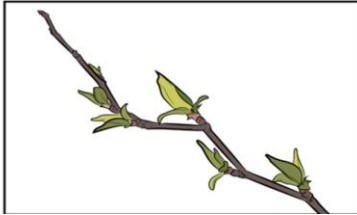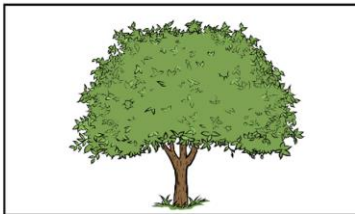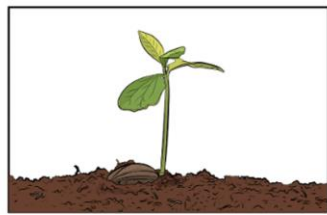
Verbal

1st Gr. Hard

1

2

3

4

5

6

Naglieri | Verbal

40
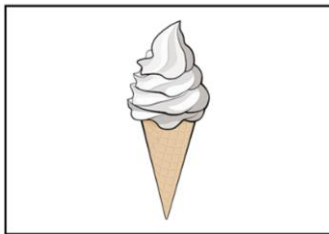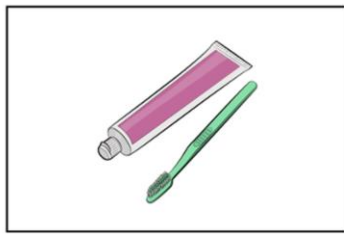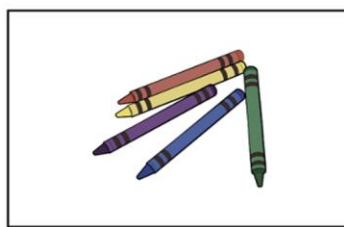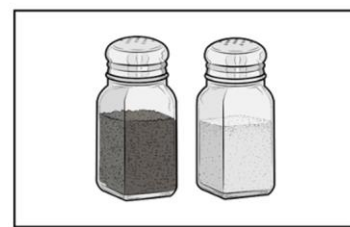
Verbal

6th Gr. Easy

1

2

3

4

5

6

Naglieri | Verbal
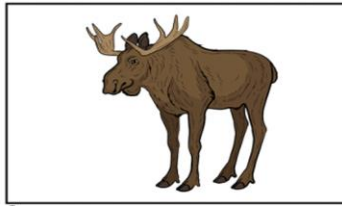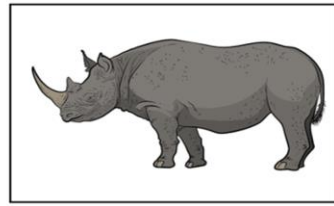
41
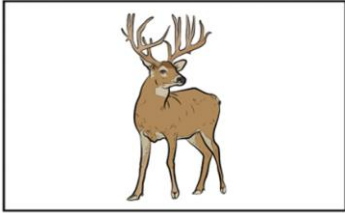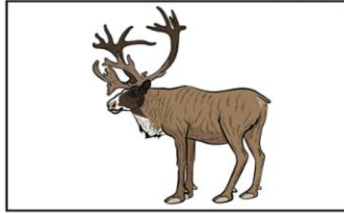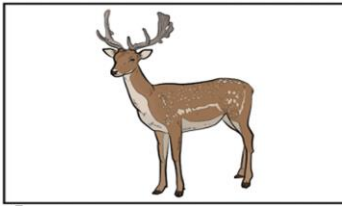
6th Gr. Hard – discuss each option


1

2

3

4

5

6

Naglieri | Verbal

42
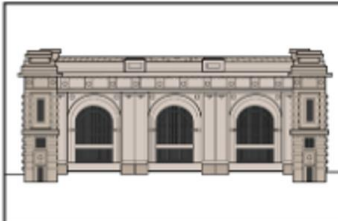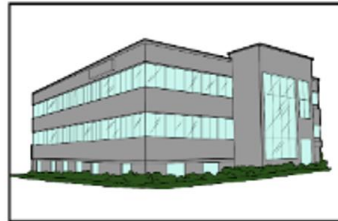
The **Naglieri-NV measures general ability** using questions that require a student to recognize the relationships among the shapes.

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.
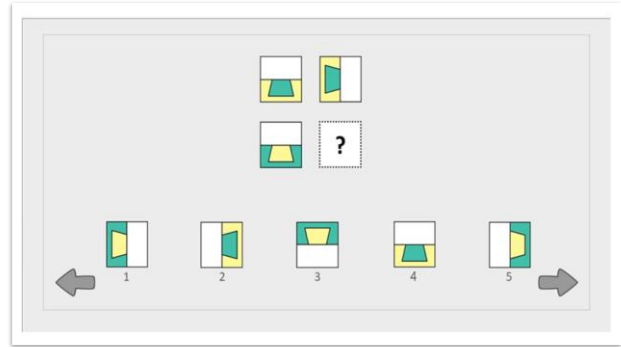
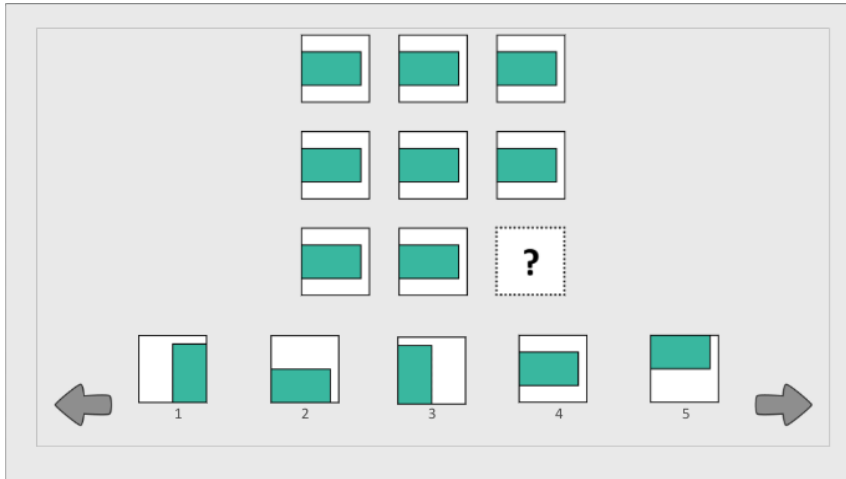

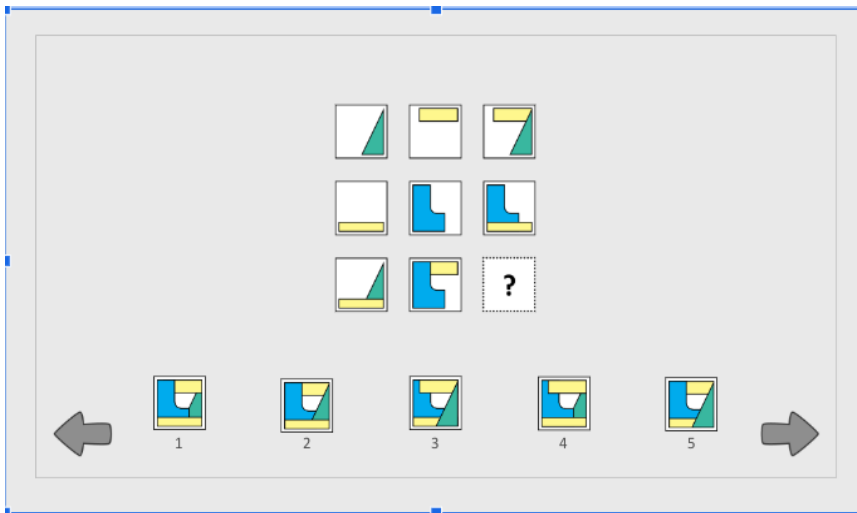*Naglieri General Ability Test –Nonverbal (Naglieri)*

43
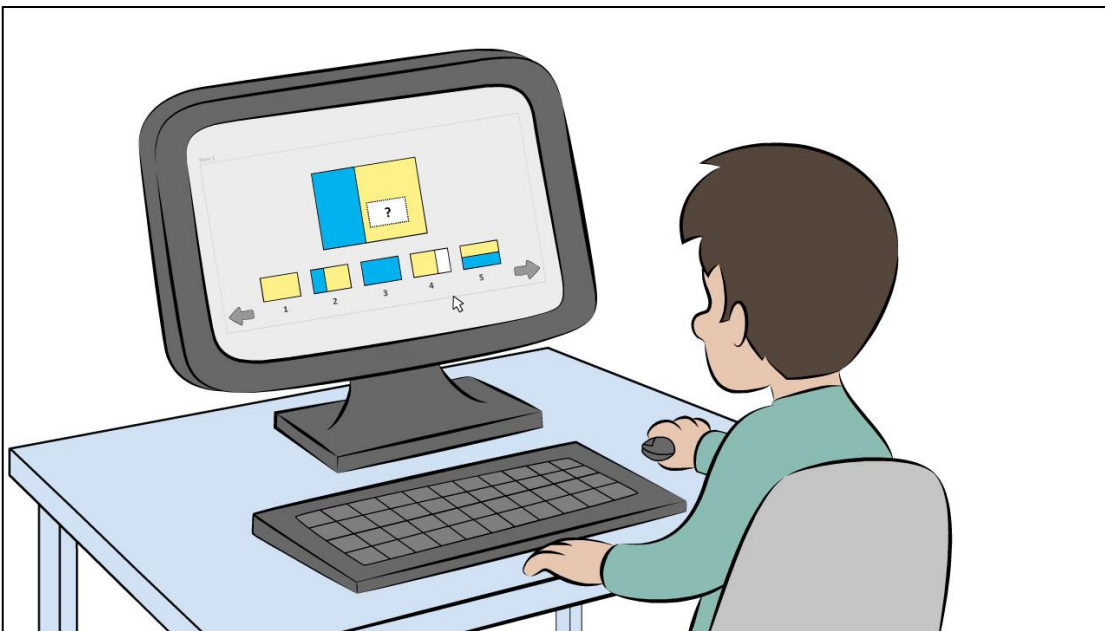
44

44

1ˢᵗ Gr.   Easy
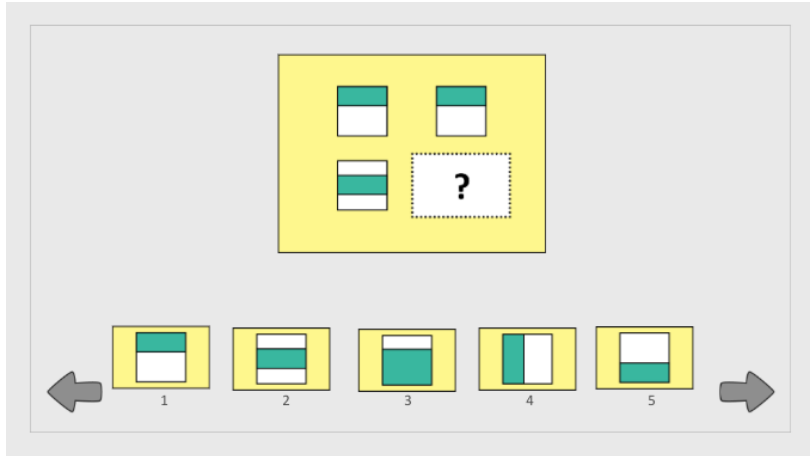
45

1ˢᵗ Gr.   Hard

46

6th Gr. — Easy

6th Gr. — Hard
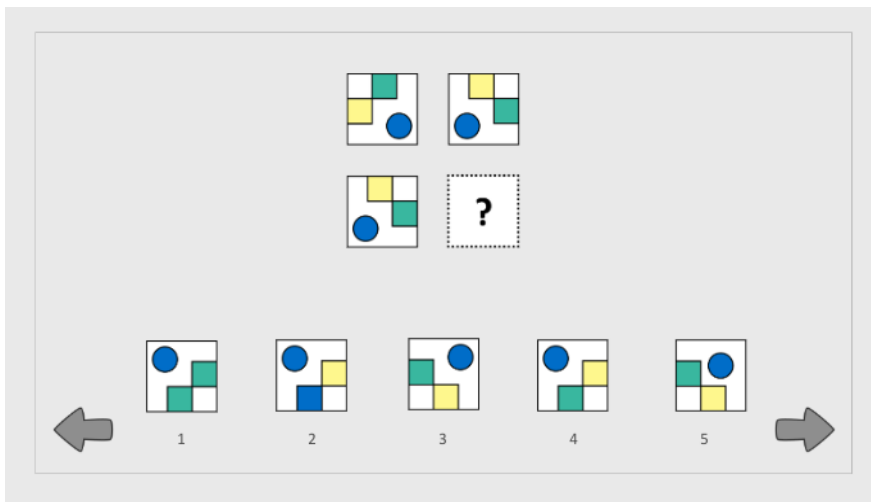
The **Naglieri-Q measures general ability** using numbers and/or symbols. Students must decipher the logic behind the relationships among the numbers and symbols to identify the answer.

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 Test – Quantitative (Naglieri & Lansdowne)

49

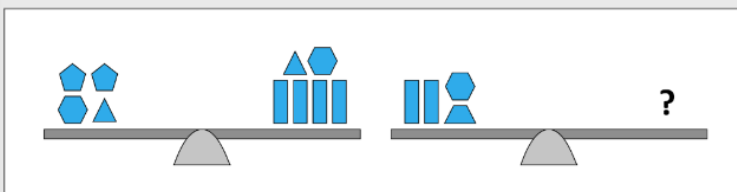
50

50

Naglieri General Ability Tests-Grade 1-Easy
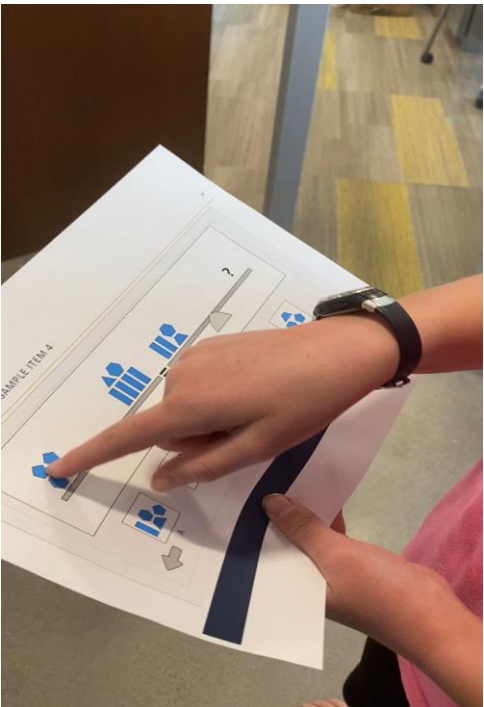
51

Naglieri General Ability Tests-Grade 1-Hard

52

Naglieri General Ability Test – Quantitative (Naglieri & Lansdowne)

53

Naglieri General Ability Tests-Grade 6-Easy

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

- Do you have a student who can do well on these, but not doing well at school?

- Can you accept that a student who can get a high score on these kinds of questions that they SHOULD BE in a gifted program?

- You can't guess and get a very high score on these tests !

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Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative Technical and Administration Manuals
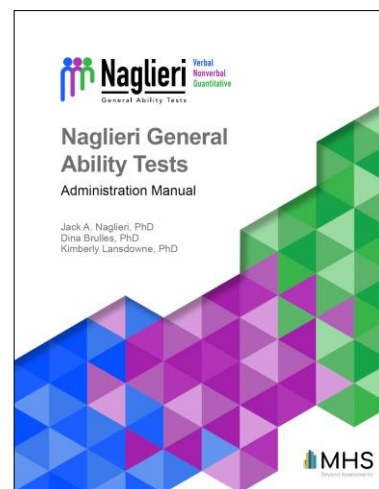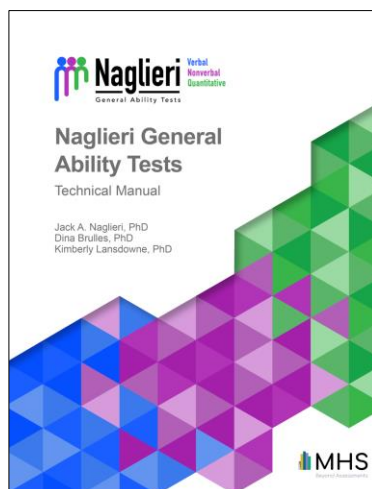
56

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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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.

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

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

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 PARENTAL 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 PARENTAL 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 PARENTAL 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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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

Trivial Standard Score Differences

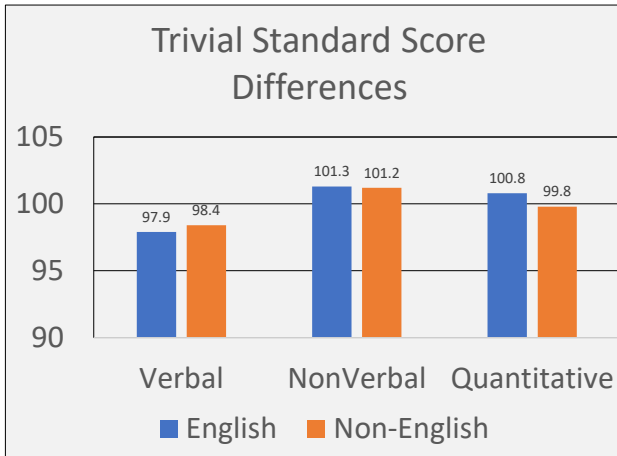| Test | Verbal | NonVerbal | Quantitative |
| English | 97.9 | 101.3 | 100.8 |
| Non-English | 98.4 | 101.2 | 99.8 |

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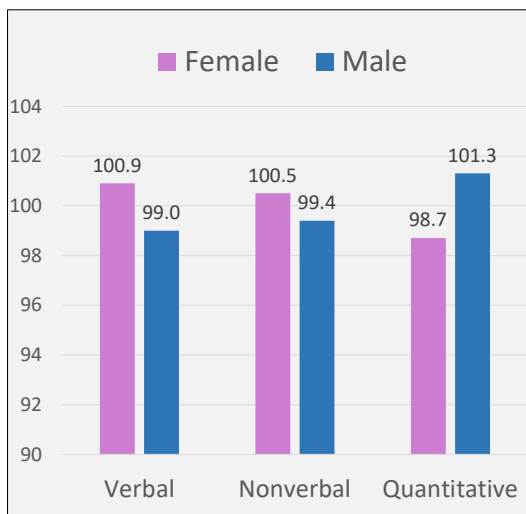## Female (N = 3,000) Male (N = 2,999) Differences

	Verbal	Nonverbal	Quantitative
Female	100.9	100.5	98.7
Male	99.0	99.4	101.3

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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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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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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Interpretive Considerations for 3 Test Scores

- The suite of Naglieri General Ability tests includes **three separate tests designed to measure "general ability**, or g"
- The three tests use questions that have different content- Verbal, Nonverbal and Quantitative and different authors.
- This provides MULTIPLE measures of general ability, 3 Total Scores and a Composite score (V, NV and Q).
- We examined how many students in the normative sample would be identified if various combinations of the three tests were given.
  - For example: "How many students had a standard score of 120 (91st percentile) on one, two or all three of these tests."

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Why Use Norms in Gifted Identification?

National and local norms are used to compare students to peers of same age or grade level.

Norms are essential for ensuring fair and accurate assessment of a student's ability.

Expands schools' ability to identify potential.

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National Norms

- Established using a large sample of students who match the country's demographics, inc. age, gender, race, ethnicity, region, and SES status.

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Local Norms

- Calibrate a student's performance in relation to peers in the same building or district.

- Ensures scores are based on a comparison group that aligns w/the local community and its unique demographics.

- Effective for identifying students from previously underrepresented populations.

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National norms may be easier to implement and can be effective when used with districts or schools that represent national demographics.

Use national norms when/if...

- The district represents the national demographic.
- You successfully identify the top percent of students in the school who need specialized services.
- You are testing students in grades that are outside though that have universal testing. (Local norms can only be used when universally screening all students within a grade).
- A student is new to the school/district and was unable to participate with their grade-peers as part of a local norm sample.

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Use Local Norms when/if...

- The school setting does not represent the U.S. population
- Universal testing of all students in a specific grade level is conducted
- Norming by school building is desired (i.e., all students in a grade level)
- Norming by a specific group is desired (i.e., by demographics)

From *The Cluster Grouping Handbook: A Schoolwide Model* by Dina Brulles, Ph.D., and Susan Winebrenner, M.S., copyright © 2019. Free Spirit Publishing Inc., Minneapolis, MN; freespirit.com; 800-735-7323.

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Case Study: Central School District

- A large, diverse district spanning several miles

- Varies greatly in household income, race, ethnicity

- >97 percentile in both achievement **and** ability needed for identification

- Per district policy, gifted teachers are staffed in correlation with the number of students identified

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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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Multiple Measures **& *Multiple Pathways!***

Different needs and circumstances require different approaches to testing and identification

- Ex. - Universal testing, using national norms (90-96%tile) and "flexing in" at Title I schools

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The Gifted Programming Dilemma:

The Chicken or the Egg?

74

Four Common Program
Models Examined
through an equity lens

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

75

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

76

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Time for final Thoughts, Questions and Answers

77

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

Socially just identification of gifted students requires self-reflection and self-correction in response to current research

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Let's Connect

Naglieri General Ability Tests
Verbal
Nonverbal
Quantitative

🌐 www.NaglieriGiftedTests.com

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▶ Naglieri General Ability Tests

f Naglieri General Ability Tests

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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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80

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

81

81