

## The Elephant in the Room: Identifying Giftedness in Underrepresented Populations

Brulles, Lansdowne & Naglieri, 2021








National Association for Bilingual Education

### Topics

- Introduction
- Measuring General Ability
- Implementation
- Conclusions

## BIG PICTURE: Gifted Identification

- This presentation is about children who may not have good grades, or the academic skills or command of English, which **LOWERS** their ability test scores so they do **NOT** look as smart as they are
- These children can become very **talented** given the opportunity to learn
- How many students have we missed?




## Numbers of Students Missed

873,129 non-white and 247,562 ELL gifted students in grades K-12 are MISSED by the identification process

	N in Public Education K-12 in 2020	N Potentially Gifted (8%, 92 %tile)	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 American/Alaska Native	484,766	38,781	27,712	-11,069
Two or More Races	1,641,817	131,345	105,371	-25,974
<b>Total Non-Whites</b>	<b>24,218,556</b>	<b>1,937,484</b>	<b>1,064,355</b>	<b>-873,129</b>

	N of ELL (n)	N Potentially Gifted (8%)	N students Identified	N Missed (% Missed)
White	298,792	23,903	5,548	15,003 (62.8%)
Black	178,141	14,251	5,166	9,085 (64%)
Hispanic	3,772,833	301,811	109,406	192,404 (64%)
Asian	321,708	25,737	14,878	10,859 (42%)
Pacific Islander	28,992	2,319	783	1,537 (66%)
Native Am. / Alaska Native	38,792	3,103	1,175	1,928 (62%)
Two or More Races	51,338	4,107	903	3,204 (78%)
<b>Total</b>	<b>4,854,160</b>	<b>388,333</b>	<b>148,773</b>	<b>247,562</b>



### TOTAL Number of Gifted Students Missed

Total Enrollments by Race and Ethnicity as of 2020.				
	N in Public Education K-12 in 2020	N Potentially Gifted (8%; 92 %tile)	N Students in gifted programs	Difference Between Potential and Identified
Total Non-Whites	24,218,556	1,937,484	1,064,355	-873,129

TABLE 1 Percentage of Schools With Identification and Percentage of Students Identified in 2018-2019			
Access - Attending a school that identifies youth with gifts and talent	Percentage of Schools That Identify Students		Percentage of Students Identified
	Non Title I Schools	54.0%	13.6%
Title I Schools	63.0%	7.60%	

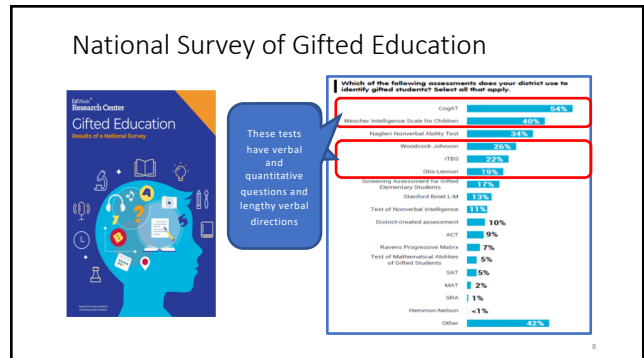
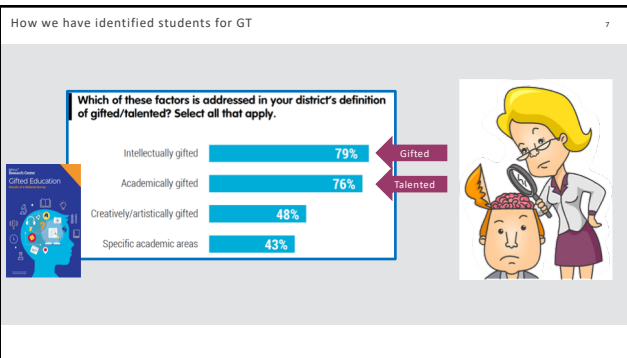
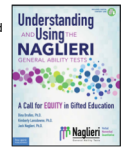
  

Percent of Schools that identify	58.5%
Percent of Schools that do not identify	41.5%
Additional non-white gifted students = 41.5% of 873,129	N = 362,305
<b>Total non-white gifted students missed</b>	<b>N = 1,235,434</b>


Combining the numbers of Black, Hispanic, Native American, and Multi-racial students who were not identified by the process used in local school district AND those students not identified because the district does not identify gifted/talented students the TOTAL number is 1,235,434.

### How to Make Identification Equitable

- Clarification of terms...
  - Gifted = very smart and Talented = very accomplished
- Identification procedures
  - In many districts identification is based on students are referred teachers and parents
  - Traditional ability tests comprised of
    - Verbal *directions* that include many verbal concepts and verbal comprehension
    - verbal and quantitative test items *demand knowledge*
    - Oral response demands *expressive language skills*
- Using a test of *ability* that demands *knowledge* is NOT FAIR







**CAUTION!**

The U-46 case reminds us that **HOW** tests scores are used in the assessment process is as important as **WHICH** tests are used.


Using one fair test does **NOT** ensure an equitable assessment process.

To find **ALL** gifted students the entire identification process must be equitable.

### Solution: Measure Thinking not Knowledge


• What does the student have to know to complete a task?

- This is dependent upon educational opportunity



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


- This is dependent on the brain




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## Measuring General Ability Equitably Using the Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative



Jack A. Naglieri, Ph.D. [jnaglieri@gmail.com](mailto:jnaglieri@gmail.com)  
 Dina Brulles, Ph.D. [dbrulles@gmail.com](mailto:dbrulles@gmail.com)  
 Kim Lansdowne, Ph.D. [Kimberly.Lansdowne@asu.edu](mailto:Kimberly.Lansdowne@asu.edu)

**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** and to ensure equity we used:
  - 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 norms

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

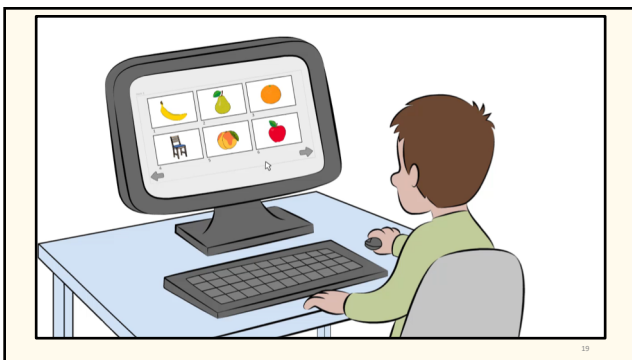
The Naglieri-V measures general ability using pictures of objects representing verbal concepts. The items are comprised of universally recognized pictures that do not rely on knowledge acquired in academic settings.

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.



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**Naglieri General Ability Test - Nonverbal**

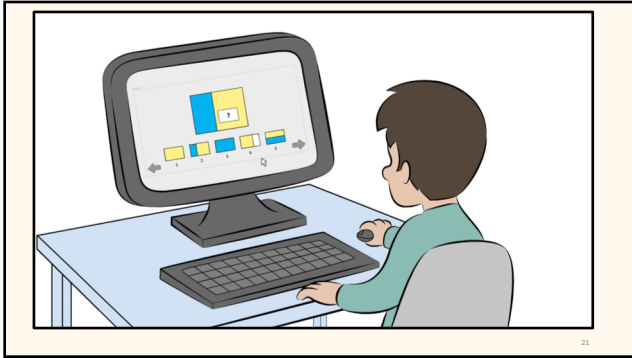
The Naglieri-NV measures general ability using questions that require a student to recognize the relationships among the shapes.

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.



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### Naglieri General Ability Test – Quantitative (Naglieri & Lansdowne)

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.



### Initial Research Results (2021)

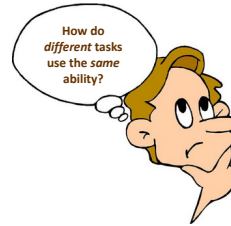
Selvamanan, M., Padozza, A., Solomon, J., Naglieri, J. A., & Schmidt, M. T. (submitted for publication, Nov. 2020). Race, Ethnicity, Gender, and Parental Education Level Differences on Verbal, Nonverbal, and Quantitative Naglieri General Ability Tests: Achieving Equity.

<p><b>• VERBAL SAMPLE</b></p> <ul style="list-style-type: none"> <li>• 2,482 That closely matches the US population on key demographics</li> </ul> <p><b>• GENDER</b></p> <ul style="list-style-type: none"> <li>• No differences between males and females for raw score across all forms</li> </ul> <p><b>• RACE/ETHNICITY</b></p> <ul style="list-style-type: none"> <li>• No differences among White, Black, &amp; Hispanic for raw score across all forms</li> </ul> <p><b>• PARENTAL EDUCATION LEVEL</b></p> <ul style="list-style-type: none"> <li>• No 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</li> </ul>	<p><b>• NONVERBAL SAMPLE</b></p> <ul style="list-style-type: none"> <li>• 3,630 That closely matches the US population on key demographics</li> </ul> <p><b>• GENDER</b></p> <ul style="list-style-type: none"> <li>• No differences between males and females for raw score across all forms</li> </ul> <p><b>• RACE/ETHNICITY</b></p> <ul style="list-style-type: none"> <li>• No differences among White, Black, &amp; Hispanic for raw score across all forms</li> </ul> <p><b>• PARENTAL EDUCATION LEVEL</b></p> <ul style="list-style-type: none"> <li>• No 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</li> </ul>	<p><b>• QUANTITATIVE SAMPLE</b></p> <ul style="list-style-type: none"> <li>• 2,841 That closely matches the US population on key demographics</li> </ul> <p><b>• GENDER</b></p> <ul style="list-style-type: none"> <li>• No differences between males and females for raw score across all forms</li> </ul> <p><b>• RACE/ETHNICITY</b></p> <ul style="list-style-type: none"> <li>• No differences among White, Black, &amp; Hispanic for raw score across all forms</li> </ul> <p><b>• PARENTAL EDUCATION LEVEL</b></p> <ul style="list-style-type: none"> <li>• No 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</li> </ul>
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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

### These tests Measure General Ability



- Even though the tests have different content (shapes, words, numbers) they all rely on general ability ('g') as described by Wechsler and many others
- The reason is that they all require understanding relationships among things or ideas

### Wechsler's View of General ability

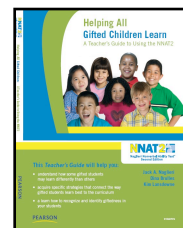
- Wechsler "believed that his Verbal and Performance Scales represented different ways to access *g* (general ability)", but he never believed [in verbal and] nonverbal intelligence as being separate from *g*. Rather he saw the Performance Scale as the most sensible way to measure the general intelligence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



### General ability (Naglieri, Brulles & Lansdowne, 2009)

- 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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Using Local Norms-a strategy to increase underrepresented populations in gifted services

- **National norms-** Compare a student's performance to peers from the same age or grade across the country
- **Local norms-** Compare a student's performance to grade level peers in the same district, school or specific grade
  - district level norms
  - school building level norms
  - group norms (ie. if 30% of the students are demographic), compare scores across that group)

Things to consider when using local norms

- Students who move to other schools/districts Local norms is a local comparison
- Identification for what? Program to fit student's needs
- Scenarios








### Goals of Education Equity:

- How do these goals impact gifted programming?
- High achievement and positive outcomes for *all* students
- Equitable access and inclusion
- Equitable treatment
- Equitable resource distribution
- Equitable opportunity to learn
- Shared accountability

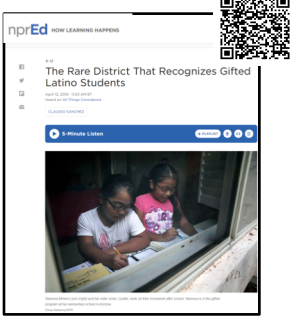
### Do *all* of our students believe that...

-  Schools have their best interests at heart?
-  Getting a good education will benefit everyone in the same way?
-  They can *each* pursue educational goals with the *same* outcomes in mind?

### NPR stories on serving ELL Gifted in Paradise Valley & Dr. Brulles

- Vanesa Minero Leon


<https://goo.gl/o3YsRr>



### NPR stories on serving ELL Gifted in Paradise Valley & Dr. Brulles

- Alejandra Guallindo

<https://goo.gl/uf2okb>



Multiple Measures & Multiple Pathways!

Different needs and circumstances require different approaches to testing and identification

- Ex. - **Universal** testing and "flexing in" at Title I schools (Consider *Eva in Kinder.*)



The Gifted Programming Dilemma:

*The Chicken or the Egg?*

Four Common Program Models Examined through an equity lens



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

Showing Growth in Gifted

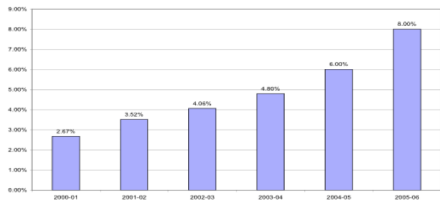


*Measure and record:*

- Ethnic representation of identified gifted students
- Academic achievement of gifted students
- Gifted population identified and served by year
- Professional development for teachers

*\* Provide data to principals and school district admin.*

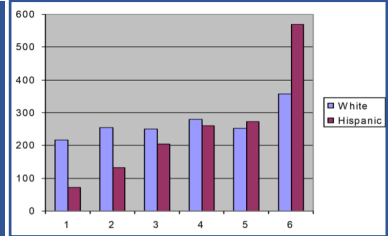
Case Study: Glendale, AZ



Gifted Population ~ Growth by Year using the SCGM & NNAT

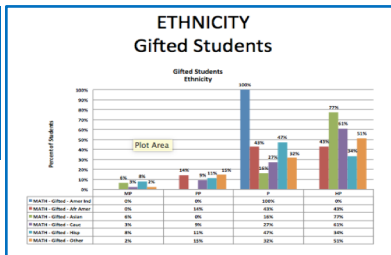
Dr. Dina Brulles Glendale, AZ Gifted in Years 2000-2006

Gifted population by ethnic breakdown of White and Hispanic students using the NNAT



Dr. Dina Brulles Glendale, AZ Gifted

Middle School Data



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### Equitable Gifted Identification

- WE CAN devise Verbal and Quantitative tests to combine with a Nonverbal test so that all the questions can be solved regardless of the language a student speaks with animated instructions and no verbal expression required. This is the way to *achieve equitable assessment.*

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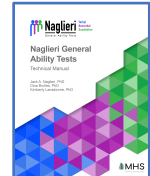
### Publisher Information: MHS.COM

The *Naglieri General Ability Tests: Verbal, Nonverbal & Quantitative* are published by [WWW.MHS.COM](http://WWW.MHS.COM), a publisher of many measures used by educators and psychologists.

**NEED TO CONNECT?**  
 Contact Debbie Roby, Account Executive [debbie.robby@mhs.com](mailto:debbie.robby@mhs.com)

**MHS** With over 30 years of experience in developing assessments for the education market, MHS is honored to partner with educators, researchers, and practitioners to improve the identification of high potential students across ever-increasingly diverse communities. We are excited to join professionals in the field of gifted and talented education in the fight to combat underrepresentation across the nation. The *Naglieri General Ability Tests* is just one suite of assessments in our portfolio.

[MHS.com](http://MHS.com)



### Website: NaglieriGiftedTests.com

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**Equity in Gifted Testing**  
 An equity approach to gifted testing is one that recognizes the unique challenges of diverse students and provides a fair and accurate assessment of their abilities.

**Achieving Equity**  
 The Naglieri General Ability Tests (NGAT) is a nonverbal, non-linguistic, and non-culturally biased measure of intelligence that is designed to identify high potential students from diverse backgrounds.

**Animated Instructions**  
 The NGAT includes animated instructions that are available in multiple languages and are designed to be accessible for all students.

**Multiple Choice Format**  
 The NGAT is a multiple choice test that is designed to be accessible for all students.

**Measure Thinking Rather Than Knowledge**  
 The NGAT is a measure of thinking rather than knowledge, which is designed to be accessible for all students.

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### Equitable Identification of Gifted Students

MAKE A CAREER OF HUMANITY, COMMIT YOURSELF TO THE NOBLE STRUGGLE FOR EQUAL RIGHTS, YOU WILL MAKE A GREATER PERSON OF YOURSELF, A GREATER NATION OF YOUR COUNTRY, AND A FINER WORLD TO LIVE IN.

Martin Luther King Jr.  
 DISTRICT OF COLUMBIA, 1959

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