Is Gifted Identification a Social Justice Issue?

Theoretical Considerations and Practical Solutions

Jack A. Naglieri, Ph.D.

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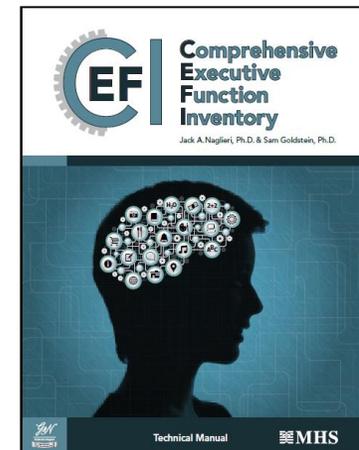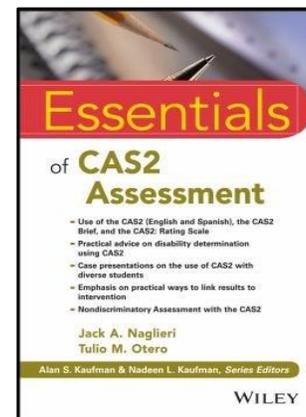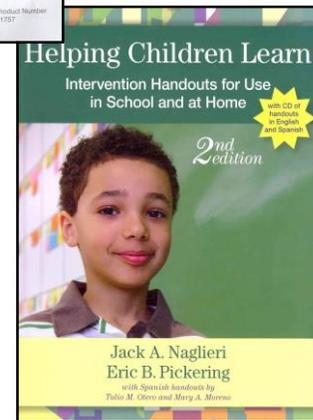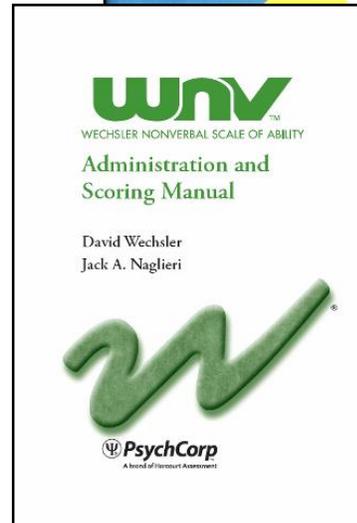
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Disclosures
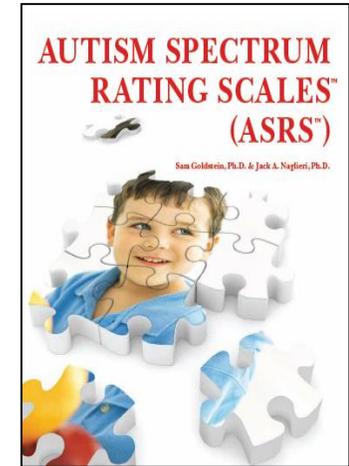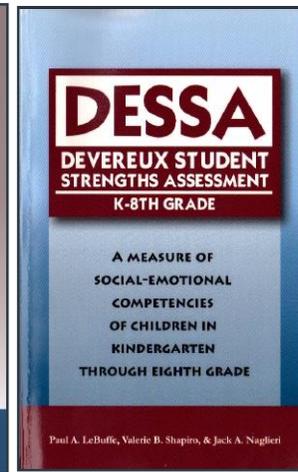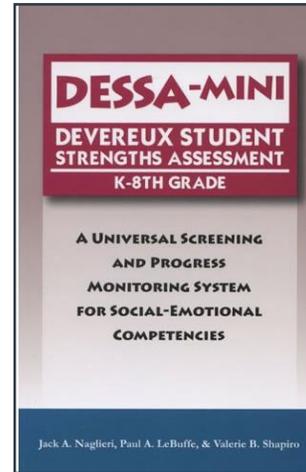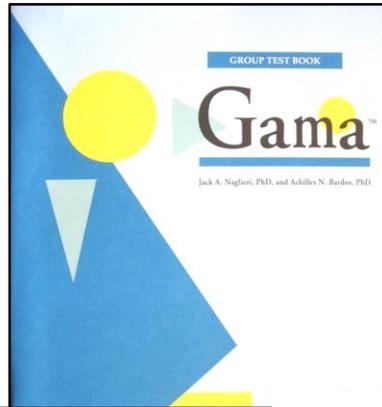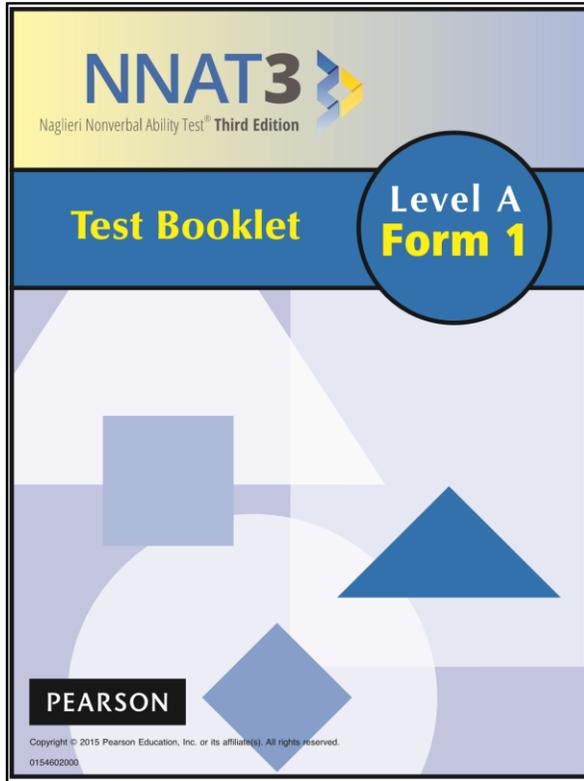
BIG Picture

➢ Traditional intelligence tests have a long history in gifted education.

➢ These tests pose a social justice issue because of their content.

➢ In an increasingly diverse country we must recognize that tests pose problems for those with limited educational opportunity and language skills.

➢ How can we overcome the negative impact of the tests?

➢ Yes, if we select tests more thoughtfully

➢ We have seen how a good test can fail if it is not used appropriately.

Our Tests
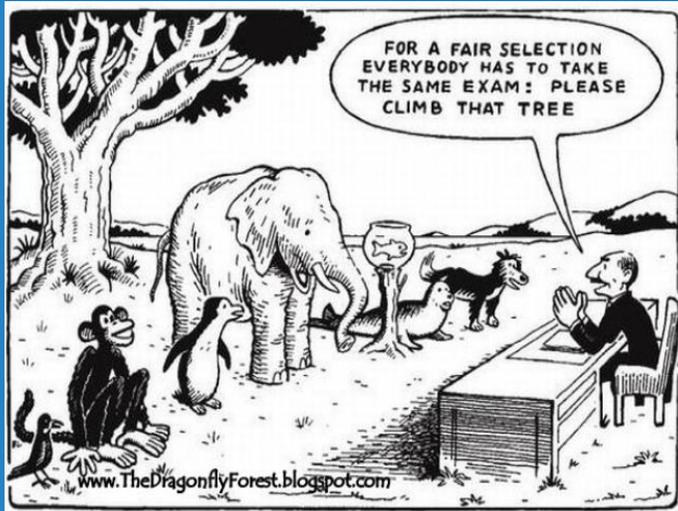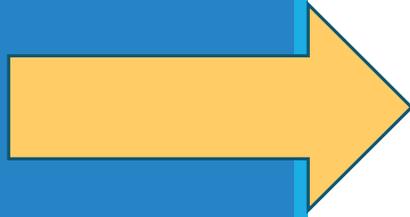
FOR A FAIR SELECTION EVERYBODY HAS TO TAKE THE SAME EXAM: PLEASE CLIMB THAT TREE

www.TheDragonflyForest.blogspot.com

What we Have Today

- A Secret about Intelligence Tests

Social Justice

- Test Bias and Test Use

Empirical Support

- What does the research suggest?

Practical Solutions

- What to do

Traditional IQ and Achievement Tests

- Working as a school psychologist I noticed that parts of the WISC we were administering was VERY similar to parts of the achievement tests

- HOW DOES THAT MAKE SENSE?

- WHY DO WE HAVE THIS PROBLEM?

> 1975 Charles Champagne Elementary, Bethpage, NY

Evolution of IQ http://www.jacknaglieri.com/cas2.html

E. L. Thorndike

A. Otis

R. Woodworth

Sam Goldstein
Dana Princiotta
Jack A. Naglieri
Editors

Handbook of Intelligence

Evolutionary Theory, Historical Perspective, and Current Concepts

Springer

Hundred Years of Intelligence Testing: Moving from Traditional IQ to Second-Generation Intelligence Tests

20

Jack A. Naglieri

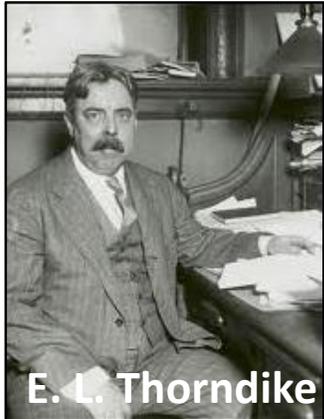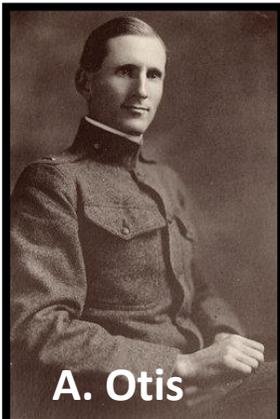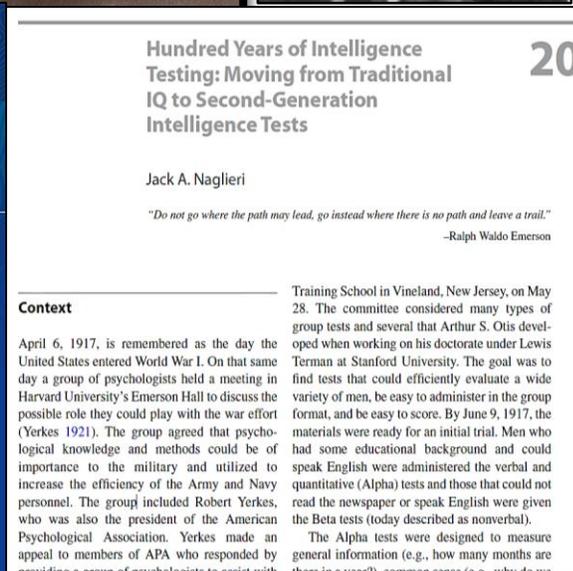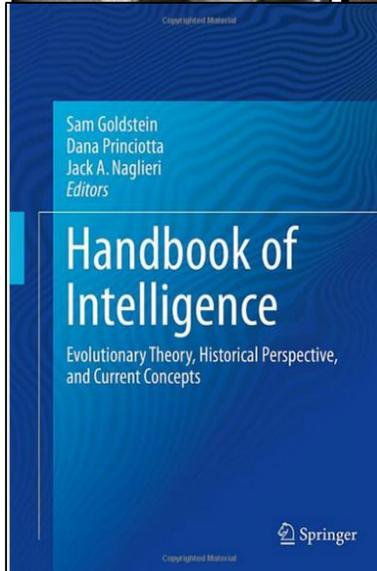"Do not go where the path may lead, go instead where there is no path and leave a trail."
–Ralph Waldo Emerson

Context

April 6, 1917, is remembered as the day the United States entered World War I. On that same day a group of psychologists held a meeting in Harvard University's Emerson Hall to discuss the possible role they could play with the war effort (Yerkes 1921). The group agreed that psychological knowledge and methods could be of importance to the military and utilized to increase the efficiency of the Army and Navy personnel. The group included Robert Yerkes, who was also the president of the American Psychological Association. Yerkes made an appeal to members of APA who responded by providing a group of psychologists to assist with

Training School in Vineland, New Jersey, on May 28. The committee considered many types of group tests and several that Arthur S. Otis developed when working on his doctorate under Lewis Terman at Stanford University. The goal was to find tests that could efficiently evaluate a wide variety of men, be easy to administer in the group format, and be easy to score. By June 9, 1917, the materials were ready for an initial trial. Men who had some educational background and could speak English were administered the verbal and quantitative (Alpha) tests and those that could not read the newspaper or speak English were given the Beta tests (today described as nonverbal).

The Alpha tests were designed to measure general information (e.g., how many months are there in a year?), common sense (e.g., why do we

> A group of psychologists met at Harvard in April of 1917 to construct an ability test to help the US military evaluate recruits (WWI) for responsible positions

> Their goal was to develop a workable set of tests to evaluate recruits

Evolution of IQ http://www.jacknaglieri.com/cas2.html

On July 20, 1917 they concluded research on the tests and determined that the Army Alpha and Beta tests could…

- "aid in segregating and eliminating the mentally incompetent, classify men according to their mental ability; and assist in selecting competent men for responsible positions" (p. 19, Yerkes, 1921).

Thus, **July 20, 1917** is the birth date of the verbal, quantitative, nonverbal IQ test format -- **Traditional groups and individually administered IQ tests.**

- **What did the tests look like?**

On July 20, 1917 they concluded that the Army Alpha and Beta tests could

- "aid in segregating and eliminating the mentally incompetent, classify men according to their mental ability; and assist in selecting competent men for responsible positions" (p. 19, Yerkes, 1921).

Thus, **July 20, 1917** is the birth date of the verbal, quantitative, nonverbal IQ test format -- **Traditional groups and individually administered IQ tests.**

- **We have had more than 100 years of this approach to intelligence testing**

Origins of Traditional IQ

From Alpha/Beta to Wechsler IQ
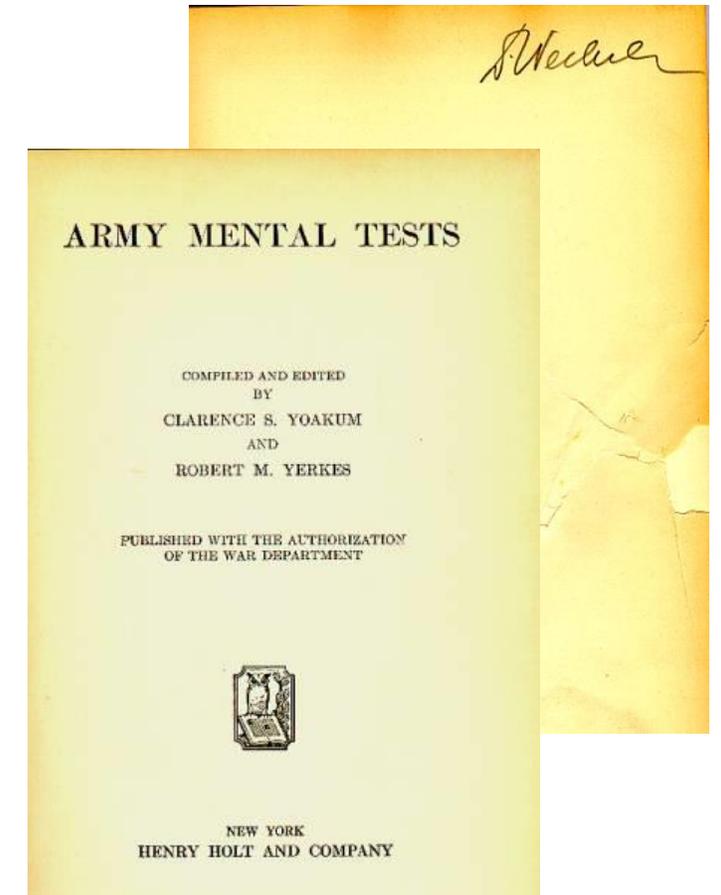
➢ **Army Alpha**

- Synonym- Antonym
- Disarranged Sentences
- Number Series
- Arithmetic Problems
- Analogies
- Information

> Verbal & Quantitative questions demand knowledge

➢ **Army Beta**

- Maze
- Cube Imitation
- Cube Construction
- Digit Symbol
- Pictorial Completion
- Geometrical Construction

> Nonverbal typically demand much less knowledge

ARMY MENTAL TESTS

COMPILED AND EDITED
BY
CLARENCE S. YOAKUM
AND
ROBERT M. YERKES

PUBLISHED WITH THE AUTHORIZATION
OF THE WAR DEPARTMENT

NEW YORK
HENRY HOLT AND COMPANY

Army Mental Tests - Arithmetic (WISC-V)

- Disarranged sentences
- Arithmetical reasoning
- Information
- Synonyms, antonyms
- Practical Judgment
- Number series
- Analogies

TEST 2

Get the answers to these examples as quickly as you can.
Use the side of this page to figure on if you need to.

SAMPLES
{ 1 How many are 5 men and 10 men?.............................Answer (15)
{ 2 If you walk 4 miles an hour for 3 hours, how far do you walk?..Answer (12)

1 How many are 40 guns and 6 guns?.................................Answer ( )
2 If you save $6 a month for 5 months, how much will you save?...........Answer ( )
3 If 32 men are divided into squads of 8, how many squads will there be?....Answer ( )
4 Mike had 11 cigars. He bought 3 more and then smoked 6. How many cigars did he have left?.............................Answer ( )
5 A company advanced 6 miles and retreated 3 miles. How far was it then from its first position?.............................Answer ( )
6 How many hours will it take a truck to go 48 miles at the rate of 4 miles an hour?.............................Answer ( )
7 How many pencils can you buy for 40 cents at the rate of 2 for 5 cents?....Answer ( )
8 A regiment marched 40 miles in five days. The first day they marched 9 miles, the second day 6 miles, the third 10 miles, the fourth 9 miles. How many miles did they march the last day?.............................Answer ( )
9 If you buy 2 packages of tobacco at 8 cents each and a pipe for 55 cents, how much change should you get from a two-dollar bill?.............................Answer ( )
10 If it takes 8 men 2 days to dig a 160-foot drain, how many men are needed to dig it in half a day?.............................Answer ( )

ARMY MENTAL TESTS

The First IQ TEST: Alpha (Verbal)

tobacco 1. Bull Durham is the name of

fruit 2. The Mackintosh Red is a kind of

typewriter 3. The Oliver is a

Mogul 4. A passenger locomotive type is the

engineers 5. Stone & Webster are well know

Superbas 6. The Brooklyn Nationals are called

fabric 7. Pongee is a

corn 8. Country Gentleman is a kind of

Mckinley 9. The President during the Spanish War was

cigarette 10. Fatima is a make of

From: Psychological Examining the United States Army (Yerkes, 1921, p. 213)

Tests That Demand Knowledge

Stanford-Binet 5	WISC-V	WJ-IV Cognitive	CogAT & Otis-Lennon
• Verbal • Knowledge • Quantitative Reasoning • Vocabulary • Verbal Analogies	…sion … • Fluid Reasoning: Figure Weights, Picture Concepts, Arithmetic	…sion … …& …rmation …ning: …es & …rmation …ocessing: Phonological Processing	• Verbal • Quantitative • Nonverbal

What was the Beta test for?

Army Beta Tests - Digit Symbol & Object Assembly
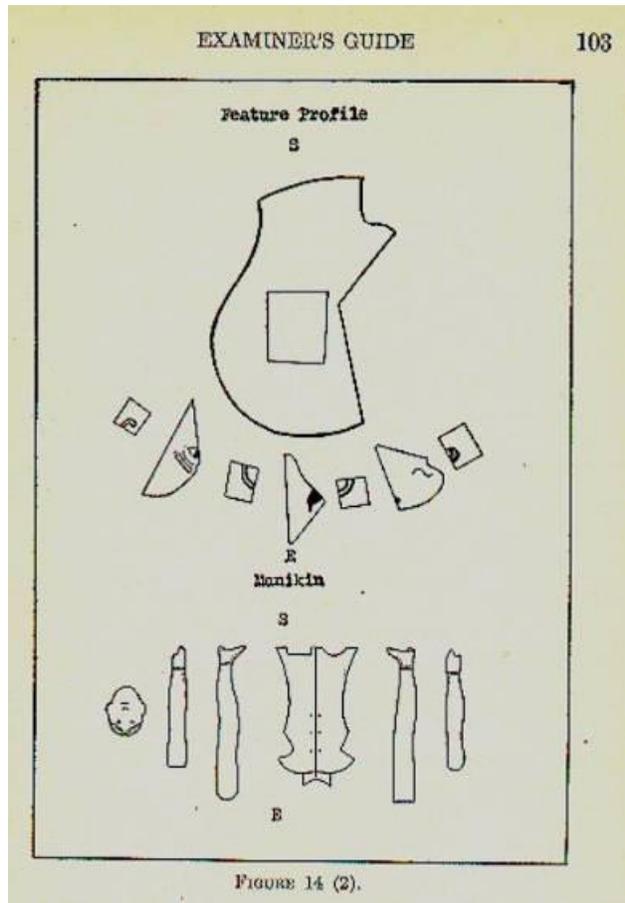
- Wechsler's Performance tests were taken from the Army Beta
- **BUT WHY were nonverbal test included?**
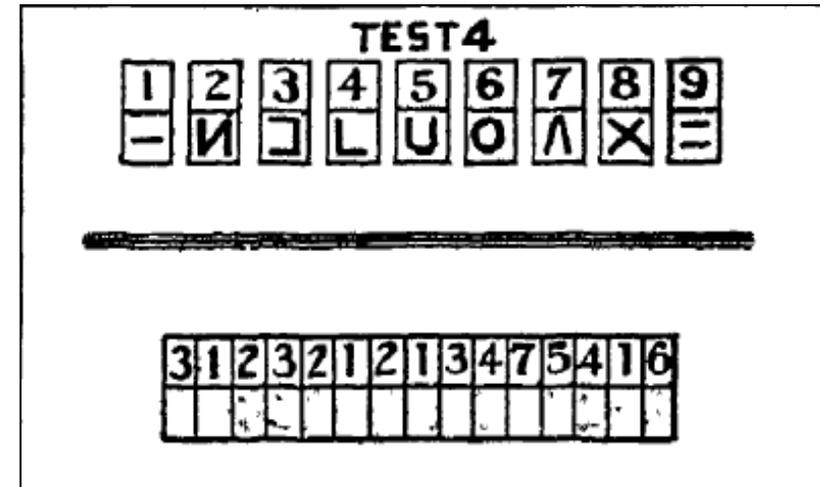
Test 7.—Digit Symbol

E. shows S. the record sheet, points to blank below 2 in the sample, then to symbol for 2 at top of page, writes in symbol, proceeds in the same way with the other parts of the sample, then gives S. pencil, points to space below 3 in the test, and nods affirmatively.
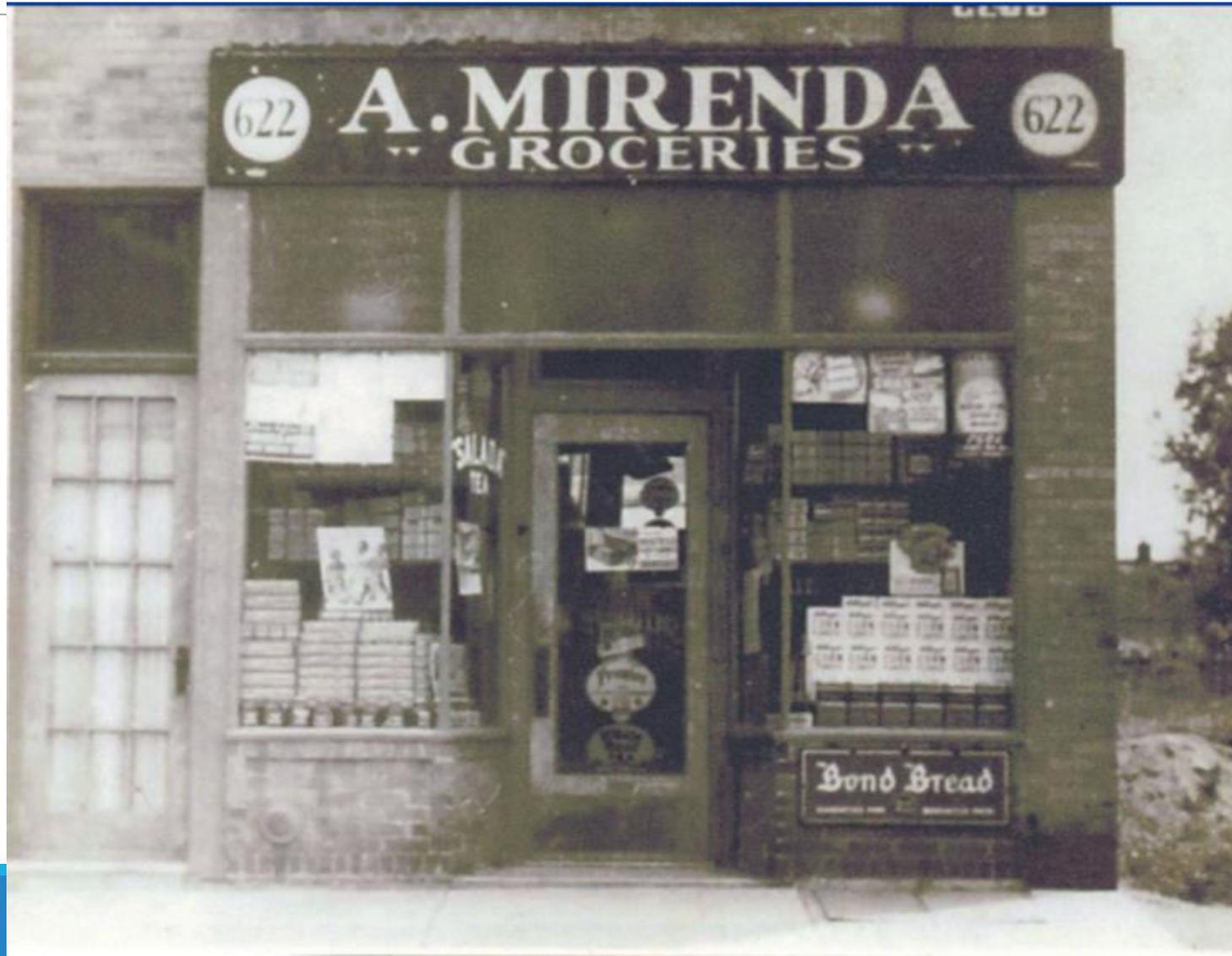
Antonino Mirenda - 1906

Why the Beta (nonverbal) tests?

CUNARD R.M.S. "PANNONIA."

Antonino Mirenda - 1907

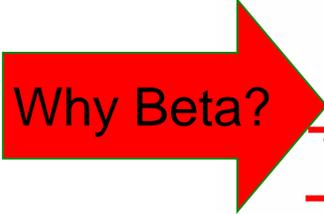# A. Mirenda Groceries 622 Ave X, Brooklyn, NY

1920 Army Testing (Yoakum & Yerkes)

Note there is no mention of measuring verbal and nonverbal intelligences – **it was a social justice issue.**
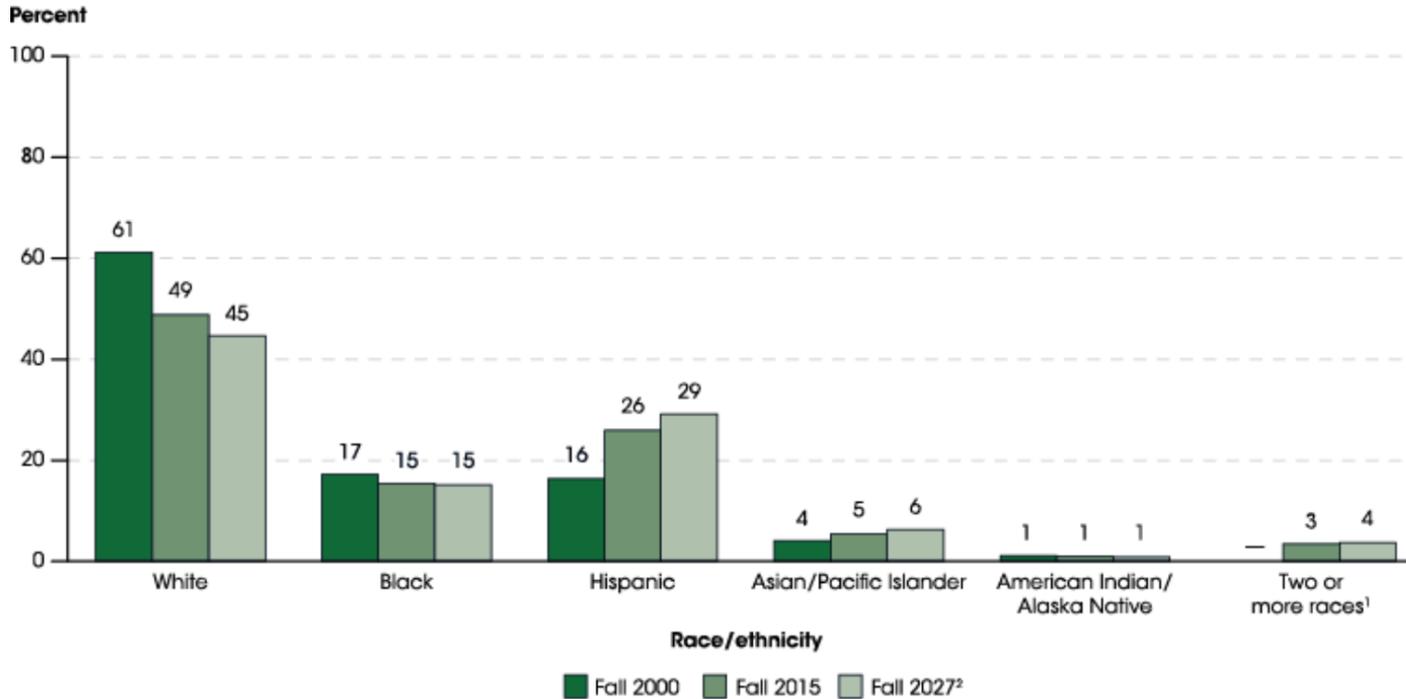
METHODS AND RESULTS 19

Why Beta?

Men who fail in alpha are sent to beta in order that injustice by reason of relative unfamiliarity with English may be avoided. Men who fail in beta are referred for individual examination by means of what may appear to be the most suitable and altogether appropriate procedure among the varied methods available. This reference for careful individual examination is yet another attempt to avoid injustice either by reason of linguistic handicap or accidents incident to group examining.

Public School Enrollment

> 16% of students in K-3 are English language learners

Figure 6.1. Percentage distribution of public school students enrolled in prekindergarten through 12th grade, by race/ethnicity: Fall 2000, fall 2015, and fall 2027

Percent

White: 61, 49, 45
Black: 17, 15, 15
Hispanic: 16, 26, 29
Asian/Pacific Islander: 4, 5, 6
American Indian/Alaska Native: 1, 1, 1
Two or more races[1]: —, 3, 4

Race/ethnicity

■ Fall 2000 ■ Fall 2015 ■ Fall 2027[2]

— Not available.

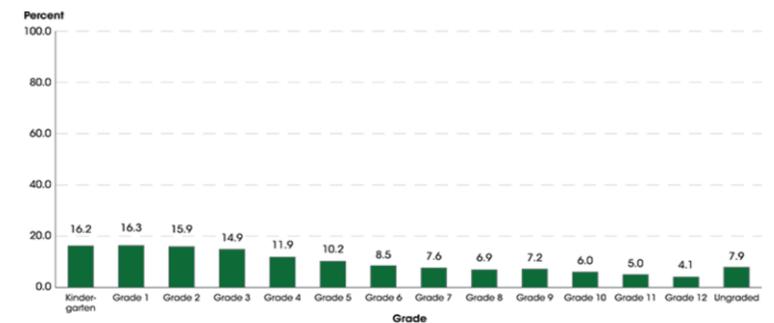[1] In 2000, data on students of Two or more races were not collected.

[2] Projected.
NOTE: Race categories exclude persons of Hispanic ethnicity. Although rounded numbers are displayed, the figures are based on unrounded estimates. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary and Secondary Education," 2000–01 and 2015–16; and National Elementary and Secondary Enrollment Projection Model, 1972 through 2027. See *Digest of Education Statistics 2017*, table 203.50.

**Figure 3. Percentage of public K–12 students who were English language learners, by grade level: Fall 2016**

Percent

Kindergarten: 16.2
Grade 1: 16.3
Grade 2: 15.9
Grade 3: 14.9
Grade 4: 11.9
Grade 5: 10.2
Grade 6: 8.5
Grade 7: 7.6
Grade 8: 6.9
Grade 9: 7.2
Grade 10: 6.0
Grade 11: 5.0
Grade 12: 4.1
Ungraded: 7.9

Grade

SOURCE: U.S. Department of Education, National Center for Education Statistics, EDFacts file 141, Data Group 678, extracted October 18, 2018; and Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary and Secondary Education," 2016–17. See *Digest of Education Statistics 2018*, table 204.27.
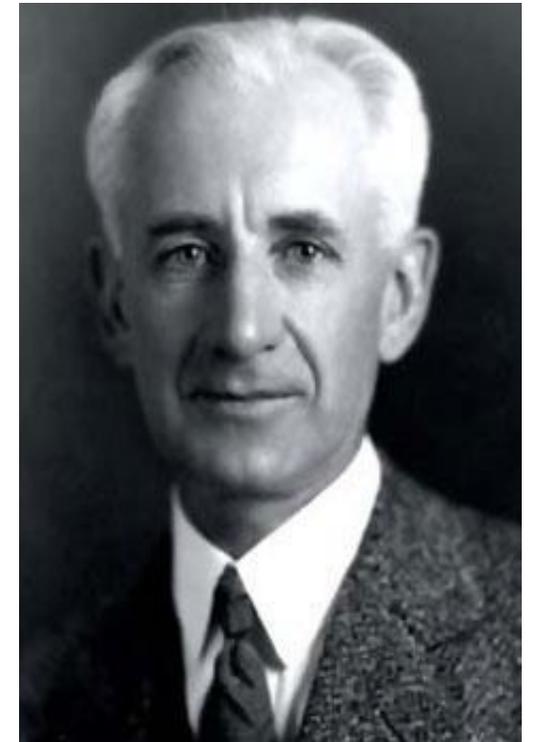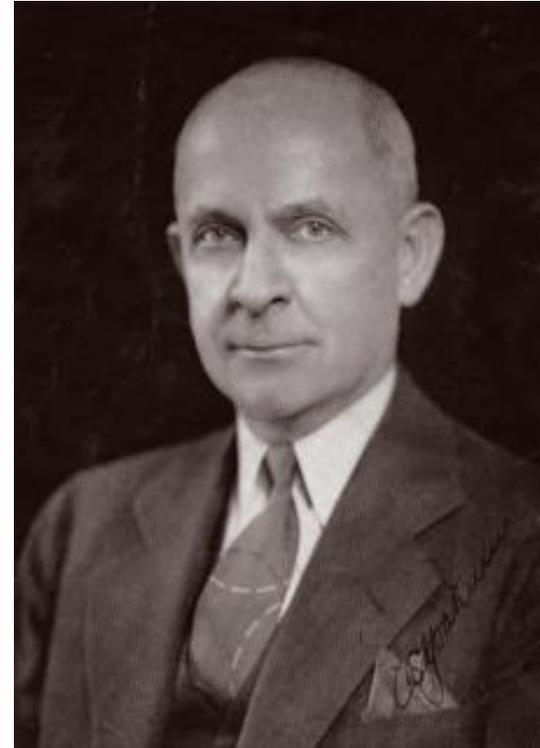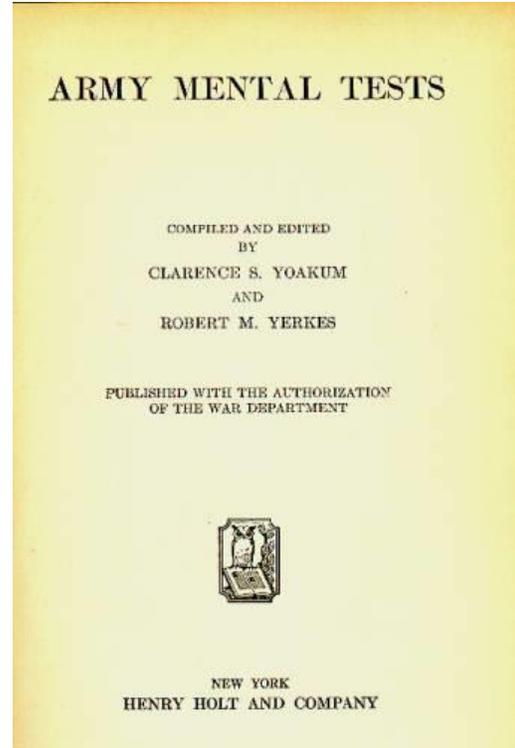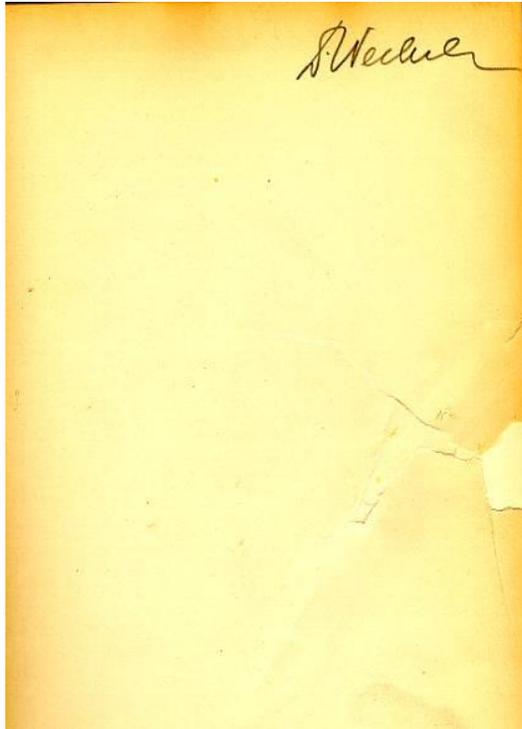
From Alpha/Beta to Wechsler IQ

Yoakum & Yerkes (1920) Summarized The Methods Used By The Military

Wechsler (1939)
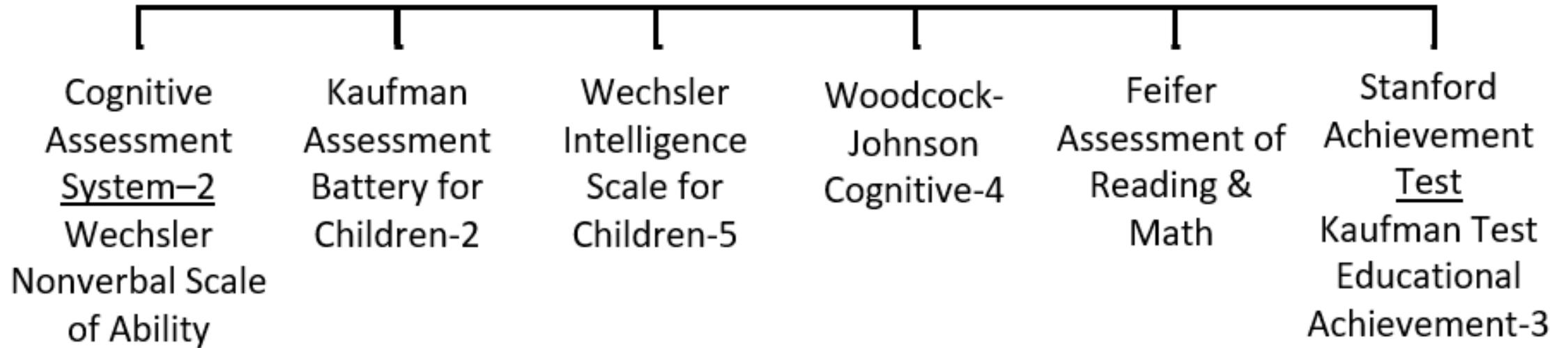

David Wechsler, Ph.D.

➢His definition of intelligence does not mention verbal or nonverbal *abilities*:

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

Thinking and Knowing Continuum

Cognitive Assessment System–2 Wechsler Nonverbal Scale of Ability	Kaufman Assessment Battery for Children-2	Wechsler Intelligence Scale for Children-5	Woodcock-Johnson Cognitive-4	Feifer Assessment of Reading & Math	Stanford Achievement Test Kaufman Test Educational Achievement-3

❖ The obvious connection between educational opportunity and vocabulary and arithmetic subtests was noted by Matarazzo (1972) when he wrote: "a man's vocabulary is necessarily influence by his education and cultural opportunities (p. 218)" and when referring to the Arithmetic subtest, "its merits are lessened by the fact that it is influenced by education (p. 203)".
The impact of education on intelligence tests was clearly understood yet our interpretations of these scores have not adequately recognized the threat to validity.

EdWeek Research Center

Gifted Education
Results of a National Survey

Support for this study provided by the Jack Kent Cooke Foundation

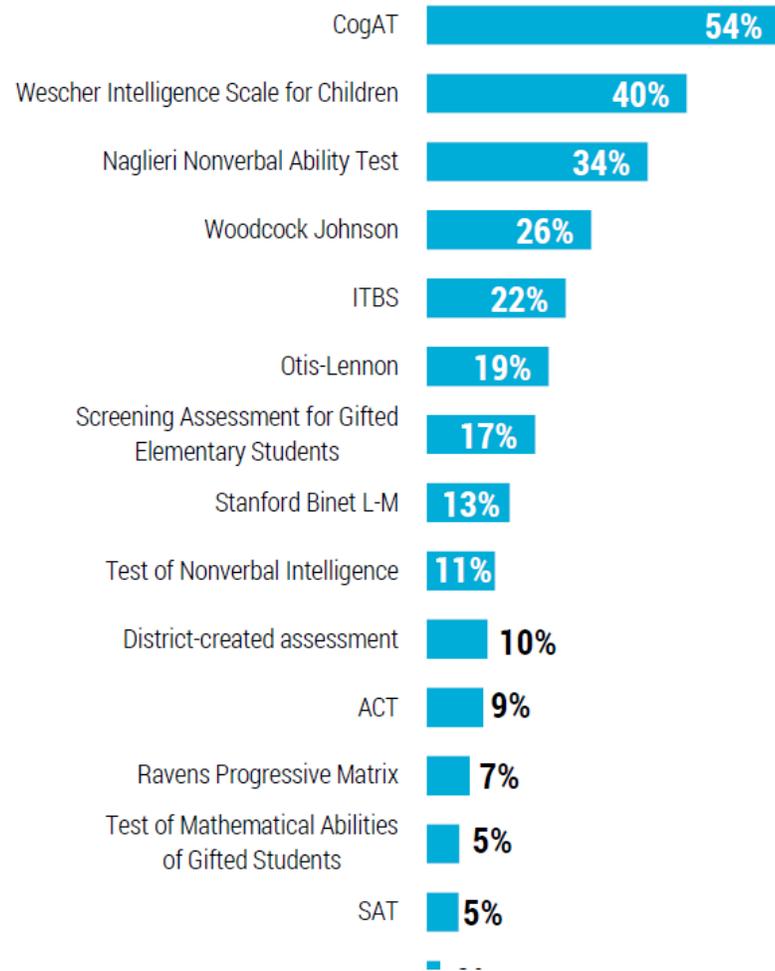Survey Administered: March-April 2019, online

Respondents: K-12 gifted education teachers, coordinators and other personnel including:

- 799 teachers
- 187 district coordinators
- 179 school-level coordinators
- 4 state coordinators
- 115 other gifted and talented personnel

Total Respondents: 1,284

Total Questions: 31

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

Assessment	Percentage
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%

Methods Matter

1. CogAT verbal, quantitative, nonverbal

2. Wechsler verbal, quantitative, nonverbal

3. Naglieri Nonverbal Ability Test is 3rd

➢ The first two require considerable amount of knowledge – that puts some at disadvantage

To Find Gifted Students Measure Thinking not Knowing

➢ What does the student have to **_know_** to complete a task?

  ▪ *This is dependent on educational opportunity (e.g., Vocabulary, Arithmetic, phonological skills, etc.)*
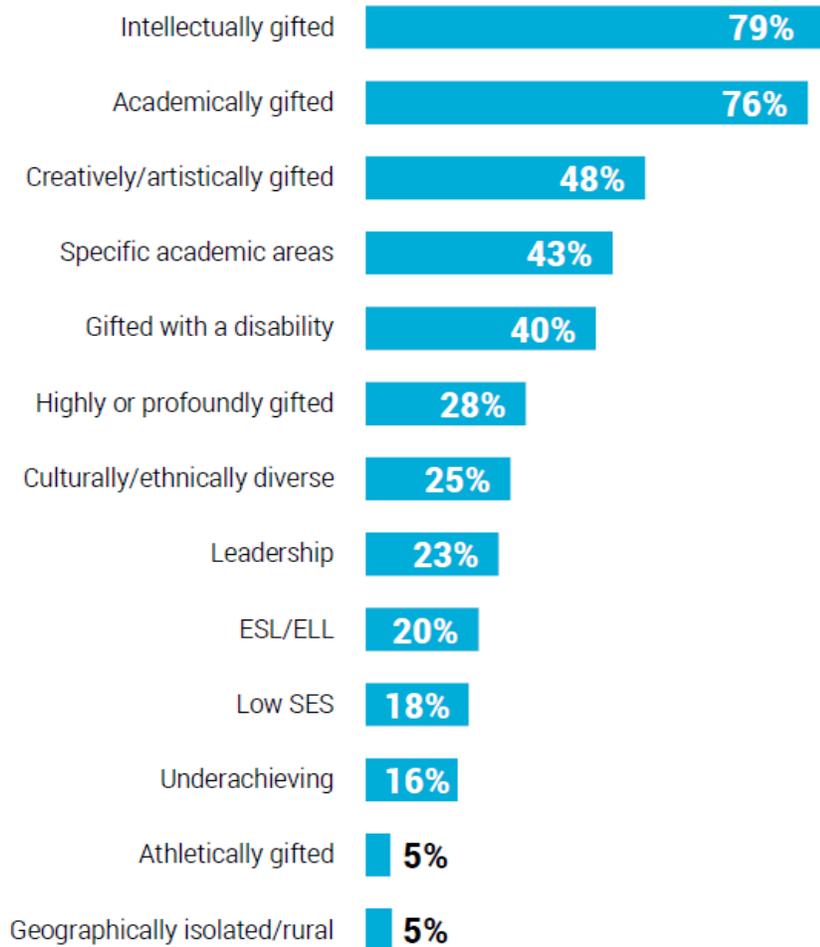
WISC-V Stanford-Binet CogAT Otis-Lennon

I don't know

How does the student have to **_think_** to complete a task?

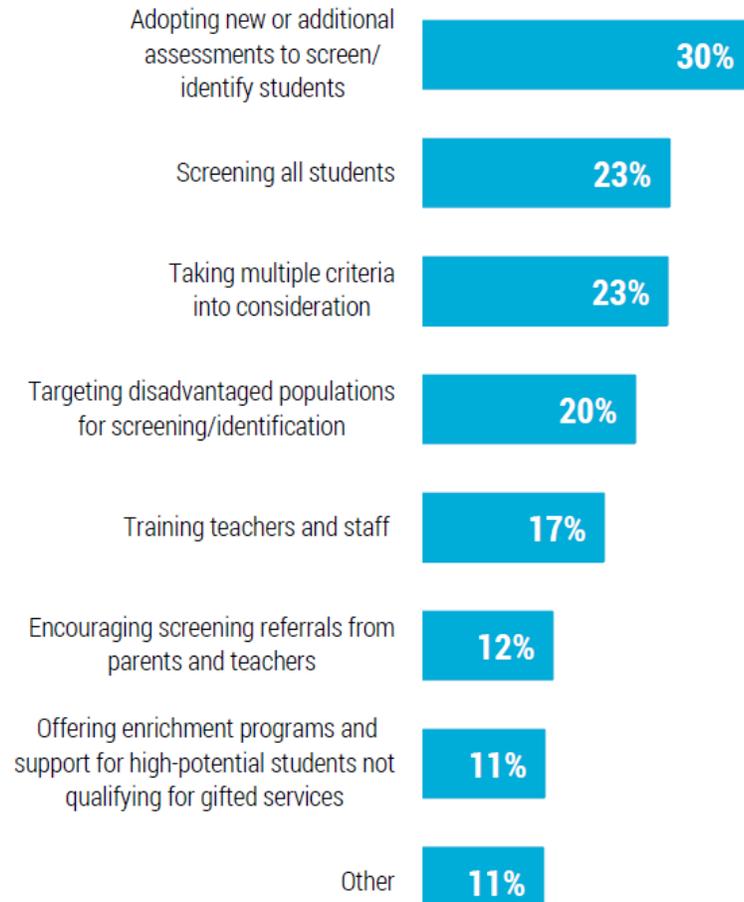*This is dependent on the brain*

I need a strategy

NNAT measures thinking

Which of these factors is addressed in your district's definition of gifted/talented? Select all that apply.

Factor	Percentage
Intellectually gifted	79%
Academically gifted	76%
Creatively/artistically gifted	48%
Specific academic areas	43%
Gifted with a disability	40%
Highly or profoundly gifted	28%
Culturally/ethnically diverse	25%
Leadership	23%
ESL/ELL	20%
Low SES	18%
Underachieving	16%
Athletically gifted	5%
Geographically isolated/rural	5%

Definition of Gifted

➢ few educators say that their districts' definitions of giftedness are as broad as the U.S. Department of Education's.

➢ few educators say definitions account for factors such as low socio-economic status that have historically been associated with lower rates of participation in gifted education

Changes in Method

What steps has your district taken to increase the odds that groups of students that are currently under-represented in gifted education will be screened/identified as gifted?

Category	Percentage
Adopting new or additional assessments to screen/identify students	30%
Screening all students	23%
Taking multiple criteria into consideration	23%
Targeting disadvantaged populations for screening/identification	20%
Training teachers and staff	17%
Encouraging screening referrals from parents and teachers	12%
Offering enrichment programs and support for high-potential students not qualifying for gifted services	11%
Other	11%

➤ The field has been changing and there is much interest in the role assessments play in under-representation

- Tests that do not require knowledge
- Universal screening
- Outreach to under-represented groups
- Careful use of any 'matrix' system

Our Tests
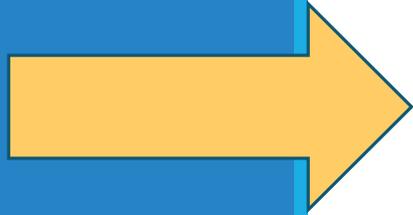
What we Have Today

- A Secret about Intelligence Tests

Social Justice

- Test Bias and Test Use

Empirical Support

- What does the research suggest?

Practical Solutions

- What to do

Definition of Social Justice

➤ The concept of Social Justice is based on the idea that all members of a society should have equal rights and access to opportunities.

➤ The ethical principles of the American Psychological Association (2017) even require <u>psychologists to ensure that their work **_benefits_** and respects the rights of all people</u>, regardless of age, gender, gender identity, race, ethnicity, culture, national origin, religion, sexual orientation, disability, language, or socioeconomic status.

American Psychological Association. (2017). Ethical principles of psychologists and code of conduct (2002, Amended June 1, 2010 and January 1, 2017).

Definitions of Social Justice

- ✓ *As applied to Psychological Assessment*, we can define Social Justice as providing equal opportunity for students to be assessed in a manner that is fair, nondiscriminatory, that ultimately benefits them through thoughtful interpretation of test results, and that leads to appropriate interventions regardless of language or cultural differences.

- ✓ This applies to students in gifted as well as special education.

- ✓ These principles have not been adhered to adequately.

Social Justice Denied

➢ In 2007, members of the U. S. Commission on Civil Rights were briefed on the improper placement of Hispanic and Black students in SPED programs (USCCR, 2007).

➢ Sullivan (2011) noted that although special education is a field built on the principle of fairness and grounded in the rhetoric of the civil rights movement, persistent disproportionality strongly indicated systemic problems of inequity, prejudice, and marginalization.

Number of Gifted Students Missed = 848,402

848,400 non-White 247,500 ELL gifted in grades K-12 not served

Table 1. Number of Students in US Public Schools Grades K-12 in 2018

	US Population	Potentially Gifted (8%) of US Population	Actual Numbers of Students in Gifted & Talented Programs	Numbers of students Not Identified
White	26,822,930	2,145,834	2,065,366	80,468
Black	8,530,756	682,460	366,823	315,637
Hispanic	15,888,681	1,271,094	778,545	492,549
Native American	572,330	45,786	25,183	20,603
Two or More Races	1,782,991	142,639	123,026	19,613
Total non-White	26,774,758	2,141,979	1,293,577	848,402

From: Naglieri, J. A. (in preparation). *Manual for the Naglieri Ability Test: Nonverbal*.

Obstacle to Gifted Identification

➢Clarification of terms…
- Gifted = very smart
- Talented = very accomplished

➢Identification procedures
- Gifted/Talented students are often identified with traditional IQ tests comprised of verbal and quantitative tests that demand knowledge of English

➢Using a test of ability that demands knowledge of English is not reasonable for those with limited education

Illinois School District U-46

Main question:
Does the District's gifted program unlawfully discriminate against Hispanic Students?

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

DANIEL, DINAH and DEANNA MCFADDEN,)
minors, by their parent and next friend, Tracy)
McFadden; KAREN, RODOLFO and KIARA)
TAPIA, minors, by their parent and next friend,)
Mariela Montoya; JOCELYN BURCIAGA, minor,)
by her parent and next friend, Griselda Burciaga;)
and KASHMIR IVY, minors, by their parent)
and next friend, Beverly Ivy; KRISTIANNE)
SIFUENTES, minors, by her parent and next)
friend, Irma Sifuentes,)
)
         Plaintiffs,)   No. 05 C 0760
    v.)
) Judge Robert W. Gettleman
BOARD OF EDUCATION FOR ILLINOIS)
SCHOOL DISTRICT U-46,)
)
         Defendant.)

On July 11, 2013, Judge Robert Gettlemen issued a decision holding that District U-46 *intentionally* discriminated against Hispanic students specific in their gifted programming (placement), and found problems with policies and instruments for

The Court's decision renewed the *Brown v. Board of Education* (1954) principle that 'separate is inherently unequal'.

... The court finds the District's method of identifying gifted Minority Students was flawed and resulted in an obvious disparate impact on those students by separating them from their gifted White peers.... By singling out most[ly] all Hispanic students for the segregated SET/SWAS program, the District deprived these children of that educational opportunity based on their ethnicity (p. 27).

Judge Gettlemen found discrimination regarding (a) tests for screening and for identification, (b) designated cutoff scores for screening and identification, (c) use of both verbal and math scores at arbitrary designated levels for screening and for identification, (d) use of weighted matrix, as well as content and criteria in weighted matrices that favored achievement and traditional measures, (e) too little reliance on a nonverbal test (Naglieri Nonverbal Ability Test) for admission to SWAS, (f) re-testing Hispanic students for middle school gifted program, (g) timing of testing, (h) use of parental referrals, and (i) use of teacher referrals (see Table 2).

Judge Gettleman's Decision

Test Validity and Social Justice

Validity is an overall evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy ... *of interpretations* ... based on test scores (Messick, 1989).

Validity is not a property of the test or assessment as such, but rather of the *meaning* of the test scores.

A study of "Consequential validity" evaluates the value of the implications of score interpretations as well as the actual and potential consequences of test use; especially in regard to sources of invalidity related to issues of bias, fairness, and distributive justice (Messick, 1980, 1989)."
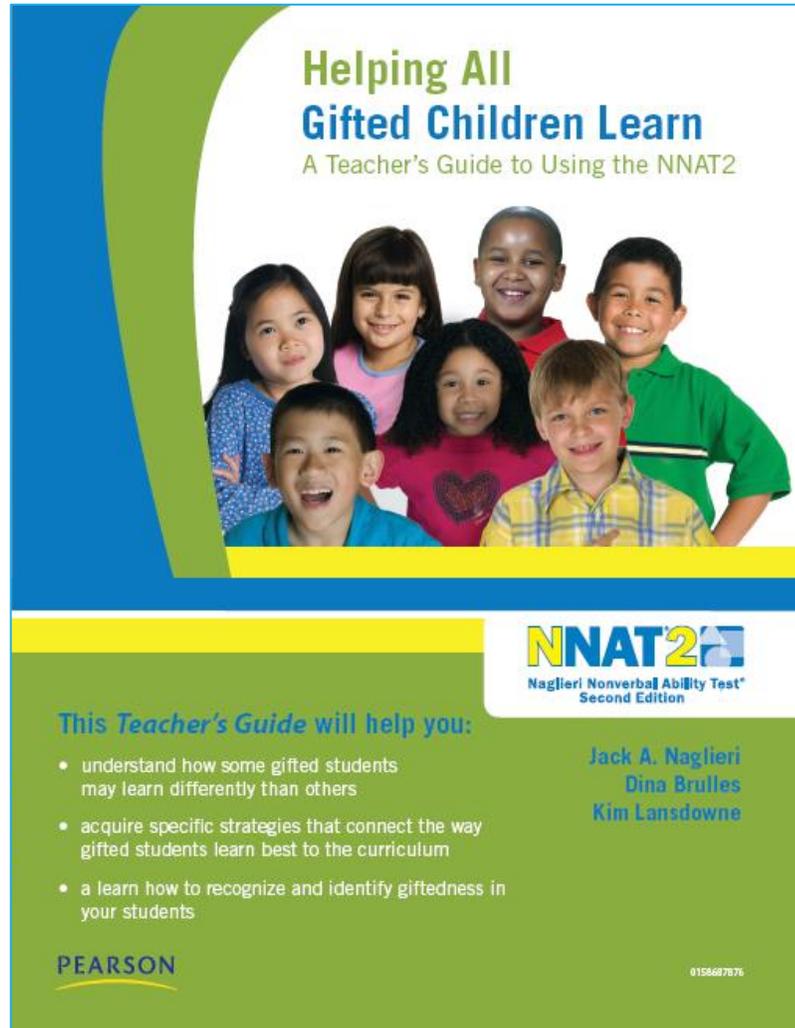
What a Nonverbal Test Measures

➤ Nonverbal assessment describes the *content of the tests* used to measure *general ability* not a theoretical construct of "nonverbal ability" (Bracken & McCallun, 1998)

➤ General ability is what allows us to solve many kinds of problems

➤ The problems 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.
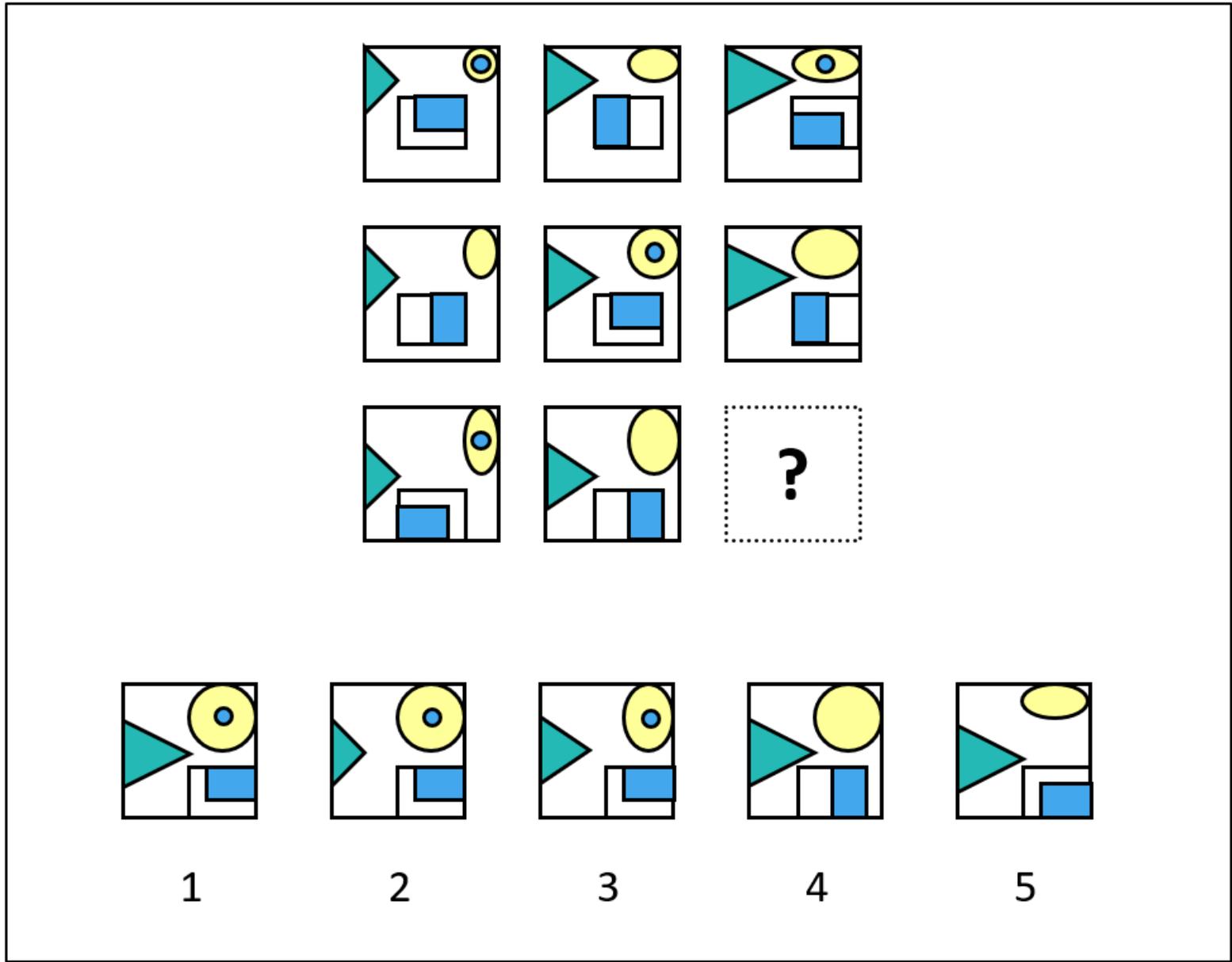
General Ability

Solving these analogies demands the same kind of thinking
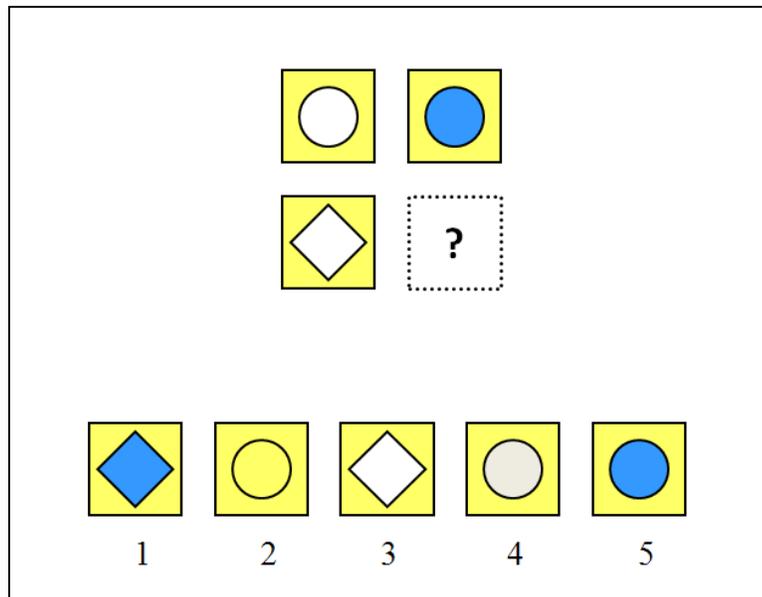
Girl is woman as boy is to _____?

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

3 is to 6 as 4 is to _____?

Nonverbal Testing & Gifted Identificaiton

> ➢ Economists David Card of the University of California, Berkeley, and Laura Giuliano of the University of Miami studied the effects of using NNAT2 for GT identification

Universal screening increases the representation of low-income and minority students in gifted education

David Card[a,1] and Laura Giuliano[b,1]

[a]Center for Labor Economics, Department of Economics, University of California, Berkeley, CA 94720-3880; and [b]Department of Economics, University of Miami, Coral Gables, FL 33124

Low-income and minority students are substantially underrepresented in gifted education programs. The disparities persist despite efforts by many states and school districts to broaden participation through changes in their eligibility criteria. One explanation for the persistent gap is that standard processes for identifying gifted students, which are based largely on the referrals of parents and teachers, tend to miss qualified students from underrepresented groups. We study this hypothesis using the experiences of a large urban school district following the introduction of a universal screening program for second graders. Without any changes in the standards for gifted eligibility, the screening program led to large increases in the fractions of economically disadvantaged and minority students placed in gifted programs. Comparisons of the newly identified gifted students with those who would have been placed in the absence of screening show that Blacks and Hispanics, free/reduced price lunch participants, English language learners, and girls were all systematically "underreferred" in the traditional parent/teacher referral system. Our findings suggest that parents and teachers often fail to recognize the potential of poor and minority students and those with limited English proficiency.

program, all second graders completed the Naglieri Non-Verbal Ability Test (NNAT), a nonverbal test intended to assess cognitive ability independent of linguistic and cultural background (8). The NNAT takes less than an hour to complete and was administered by teachers in the classroom. The NNAT scores were used to construct a nationally normed index with a mean of 100 and SD of 15, similar to a standard IQ test. All students scoring at least 130 points on the test, and ELL/FRL students scoring at least 115 points, were automatically eligible to be referred for full evaluation and regular IQ testing by District psychologists. Because students could still be nominated for testing by parents or teachers as in earlier years, the aim of the screening program was to supplement the traditional referral system and boost referral rates for underrepresented groups.

The other key features of the District's gifted identification process remained unchanged. Referred students were placed in a queue for a full IQ test given by a District psychologist, although parents could bypass the queue by paying to have their child tested privately. Students with IQs above the relevant threshold were eligible for gifted status, with the final determination based on parent and teacher inputs and scores on a checklist of "gifted indicators." (Supporting Information provides more details on the District's gifted

Card & Giuliano (2017)

- The number of Hispanic and Black students increased considerably as did the numbers of students who were in poverty with universal screening using NNAT2

➢ When Broward County suspended universal screening due to budget cuts racial and ethnic disparities re-emerged, as large as they were before.

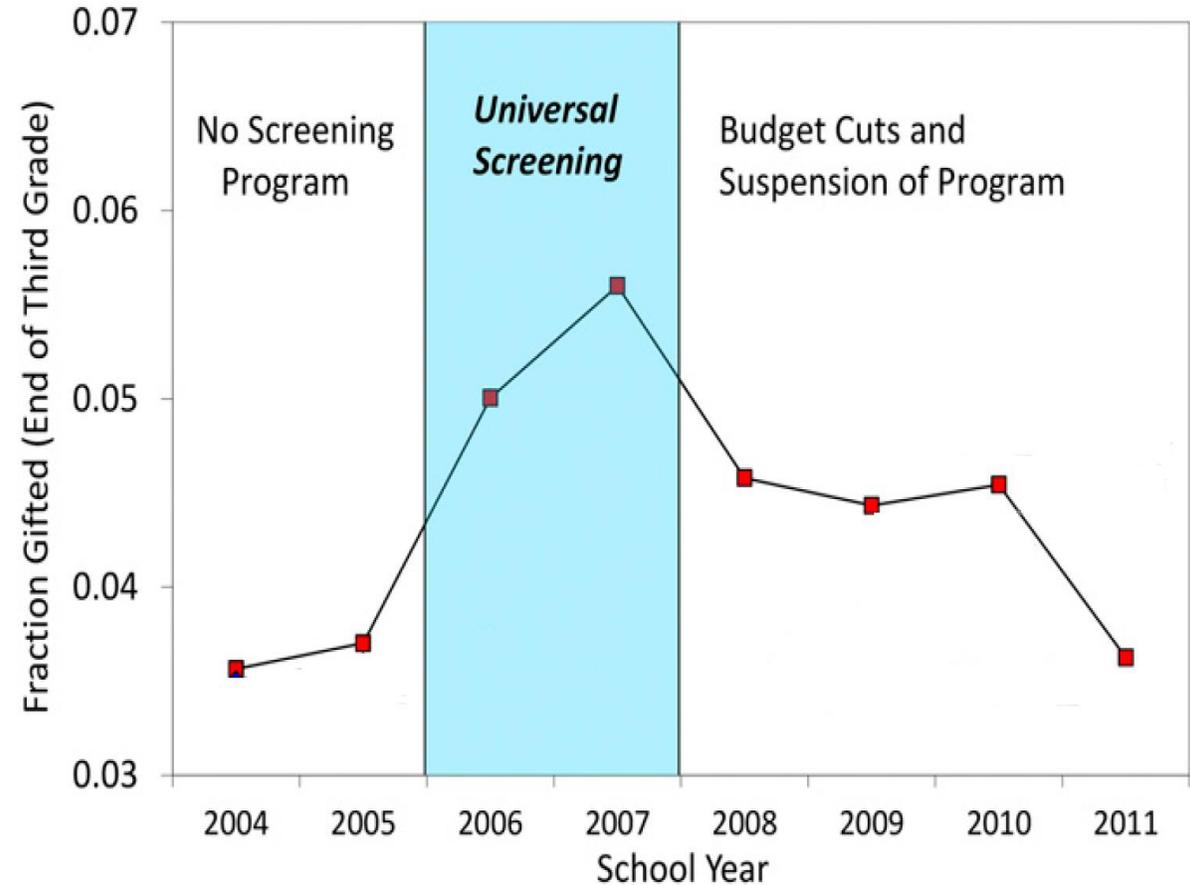➢ Effects of giving NNAT2 to all students in years 2006 and 2007 (N = 79,650)

Fig. 1. Fraction gifted by end of third grade,

NNAT's Small Race & Ethnic Differences

	N	Mean	Diff
White	2,306	99.3	
Black	2,306	95.1	4.2
White	1,176	101.4	
Hispanic	1,176	98.6	2.8
White	466	103.6	
Asian	446	103.0	0.3

Comparison of White, African American, Hispanic, and Asian Children on the Naglieri Nonverbal Ability Test

Jack A. Naglieri and Margaret E. Ronning
Ohio State University

This study examined differences between 3 matched samples of White ($n = 2,306$) and African American ($n = 2,306$), White ($n = 1,176$) and Hispanic ($n = 1,176$), and White ($n = 466$) and Asian ($n = 466$) children on the Naglieri Nonverbal Ability Test (NNAT; J. A. Naglieri, 1997a). The groups were selected from 22,620 children included in the NNAT standardization sample and matched on geographic region, socioeconomic status, ethnicity, and type of school setting (public or private). There was only a small difference between the NNAT scores for the White and African American samples (d ratio = .25) and minimal differences between the White and Hispanic (d ratio = .17) and between the White and Asian (d ratio = .02) groups. The NNAT was moderately correlated with achievement for the total sample and correlated similarly with achievement for the White and ethnic minority groups. The median correlation of NNAT with reading was .52 and NNAT with math was .63 across the samples. Results suggest that the NNAT scores have use for fair assessment of White and minority children.
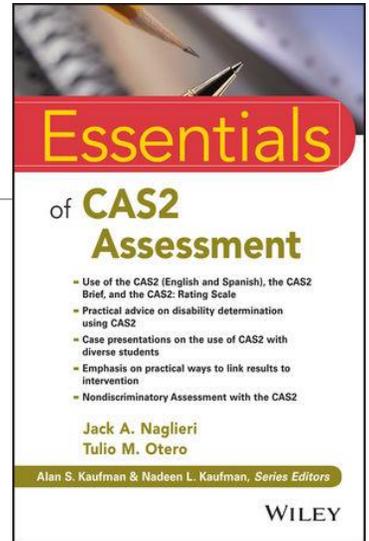
Essentials of **CAS2 Assessment**
- Use of the CAS2 (English and Spanish), the CAS2 Brief, and the CAS2: Rating Scale
- Practical advice on disability determination using CAS2
- Case presentations on the use of CAS2 with diverse students
- Emphasis on practical ways to link results to intervention
- Nondiscriminatory Assessment with the CAS2

Jack A. Naglieri
Tulio M. Otero
Alan S. Kaufman & Nadeen L. Kaufman, *Series Editors*
WILEY

Table 1.6 Standard Score Mean Differences by Race on Traditional and Nontraditional Intelligence Tests

Test	Difference
Traditional IQ Tests	
SB-IV (matched samples)	12.6
WISC-IV (normative sample)	11.5
WJ-III (normative sample)	10.9
WISC-IV (matched samples)	10.0
Nontraditional Tests	
K-ABC (normative sample)	7.0
K-ABC (matched samples)	6.1
KABC-II (matched samples)	5.0
CAS2 (normative sample)	6.3
CAS (demographic controls of normative sample)	4.8
CAS2 (demographic controls of normative sample)	4.3

NNAT Identified Equal Percentages

Table 2

NNAT Scores

	White		Black		Hispanic		Expected
	n	%	*n*	%	*n*	%	%
120 & above	1,571	10.3	269	9.4	190	9.5	9.0
125 & above	906	5.6	145	5.1	88	4.4	5.0
130 & above	467	2.5	75	2.6	46	2.3	2.0
135 & above	190	1.1	42	1.5	18	0.9	1.0
140 & above	90	0.6	19	0.6	9	0.4	0.4
Total Sample *n*	14,141		2,863		1,991		

Note. Expected percentage values are those associated with normal curve probabilities.

GIFTED IDENTIFICATION

Addressing Underrepresentation of Gifted Minority Children Using the Naglieri Nonverbal Ability Test (NNAT)

Jack A. Naglieri
George Mason University

Donna Y. Ford
The Ohio State University

ABSTRACT

A persistent problem in education is the underrepresentation of diverse students in gifted education programs. Many educators attribute the poor participation of diverse students in gifted programs to the ineffectiveness of standardized tests in capturing the ability of these students. Thus, a primary agenda of school selection committees is to find more culturally sensitive measures. This study examined the effectiveness of the Naglieri Nonverbal Ability Test (NNAT) in identifying gifted Black and Hispanic students in comparison to White students. The sample was comprised of

attribute the problem to standardized tests, contending that these tests fail to assess the strengths and abilities of culturally, ethnically, and linguistically diverse populations (e.g., Frazier et al., 1995). Support for this assertion comes from reports showing that Black, Hispanic, and Native American students consistently score lower than White students on traditional standardized tests (Brody, 1992; Sattler, 1988).

Despite the fact that intelligence tests such as the Wechsler Intelligence Scale for Children–Third Edition

PUTTING THE RESEARCH TO USE

Very Similar percentages of Black, White and Hispanic students earned a standard score of 125 (95th percentile) or above

Does the NNAT work for ELL students?

Psychological Assessment
2004, Vol. 16, No. 1, 81–84

Copyright 2004 by the American Psychological Association, Inc.
1040-3590/04/$12.00   DOI: 10.1037/1040-3590.16.1.81

BRIEF REPORTS

Comparison of Hispanic Children With and Without Limited English Proficiency on the Naglieri Nonverbal Ability Test

Jack A. Naglieri
George Mason University

Ashley L. Booth
University of Virginia

Adam Winsler
George Mason University

Hispanic children with ($n = 148$) and without ($n = 148$) limited English proficiency were given the Naglieri Nonverbal Ability Test (NNAT; J. A. Naglieri, 1997a) and the Stanford Achievement Test—9th edition (SAT–9; 1995). The groups were selected from the NNAT standardization sample ($N = 22,620$) and matched on geographic region, gender, socioeconomic status, urbanicity, and ethnicity. There was a very small difference (d ratio = 0.1) between the NNAT standard scores for the children with limited English proficiency ($M = 98.0$) and those without limited English proficiency ($M = 96.7$). The NNAT correlated moderately and similarly with achievement for the 2 groups. The sample of children with limited English proficiency earned considerably lower scores on SAT–9 Reading and Verbal subtests. Results suggest that the NNAT may be useful for the assessment of Hispanic children with and without limited English proficiency.

Assessment of intelligence for persons with limited English language skills has been an important issue since the familiar verbal–nonverbal organization of tests was initially made popular in the Army Alpha and Beta tests (Yoakum & Yerkes, 1920). The

Recent research on the nonverbal approach to measuring general ability has shown that the Naglieri Nonverbal Ability Test (NNAT; Naglieri, 1997a) can be an effective way to assess general ability, yields small race and ethnic group differences.
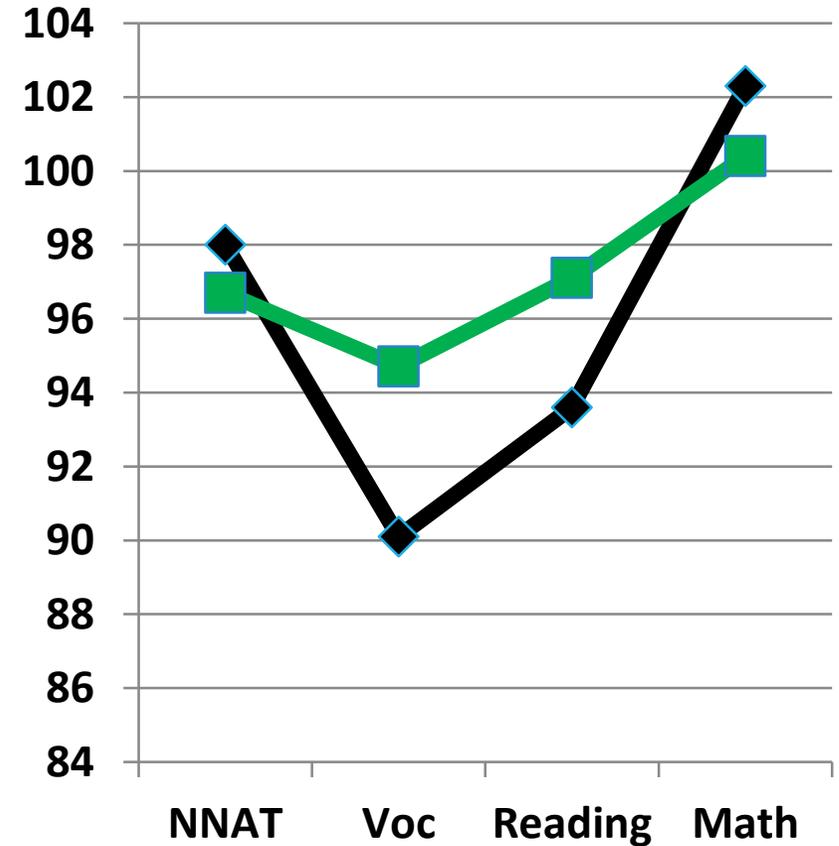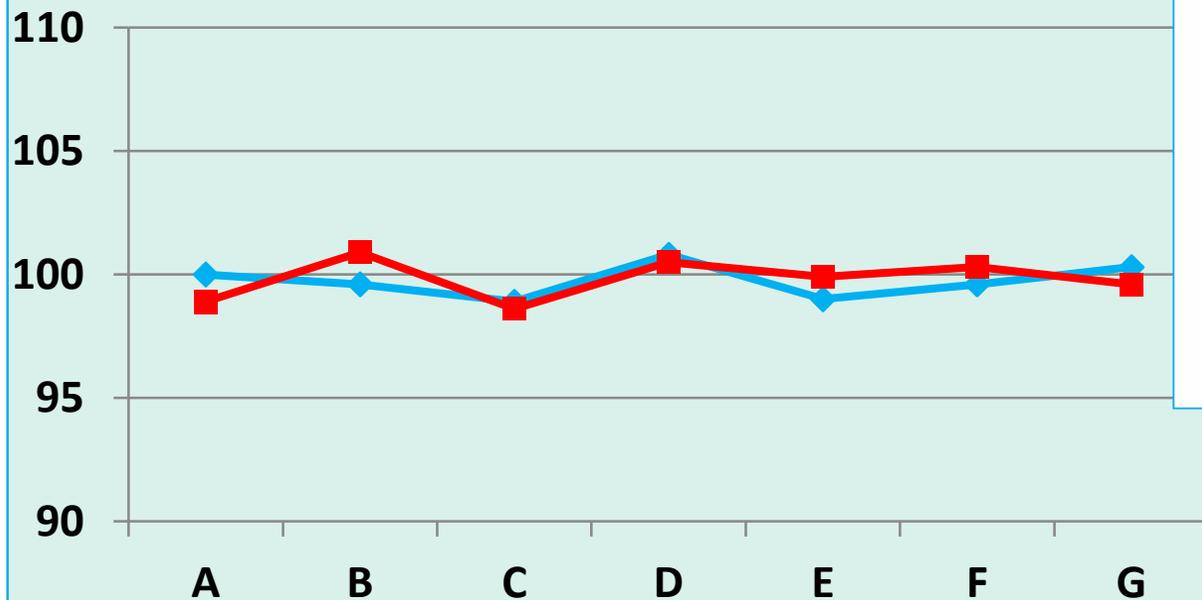
No Gender Differences on NNAT

Developmental gender differences on the Naglieri Nonverbal Ability Test in a nationally normed sample of 5–17 year olds

Johannes Rojahn [*], Jack A. Naglieri

George Mason University, United States

Abstract

Lynn [Lynn, R. (2002). Sex differences on the progressive matrices among 15–16 year olds: some data from South Africa. *Personality and Individual Differences 33*, 669–673.] proposed that biologically based developmental sex differences produce different IQ trajectories across childhood and adolescence. To test this theory we analyzed the Naglieri Nonverbal Ability Test (NNA; [Naglieri, J. A. (1997). *Naglieri Nonverbal Ability Test-Multilevel Form*. San Antonio: Harcourt Assessment Company.]) standardization sample of 79,780 children and adolescents in grades K-12, which was representative of the US census on several critical demographic variables. NNAT data were consistent with Lynn's developmental theory of gender differences insofar as (a) there were no gender differences between 6 and 9 years; (b) females scored slightly higher between 10 and 13 years; and (c) males were ahead of females between the ages of 15 and 16. However, the discrepancies between the genders were smaller than predicted by Lynn. In fact they were so small that they have little or no practical importance. In other words, the NNAT did not reveal meaningful gender differences at any stage between the ages of 6 and 17 years.
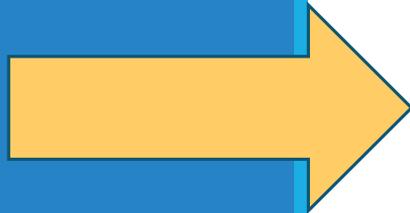
Research Implications

➢ Nonverbal tests are more equitable, but only if they are used correctly
- Universal screening (not based on referral)
- Properly weighted when using a matrix

➢ Any method that might be considered in place of tests should be carefully examined for its validity and reliability

➢ Can verbal and quantitative tests be improved?

Can we change verbal and quantitative tests to make them more equitable?
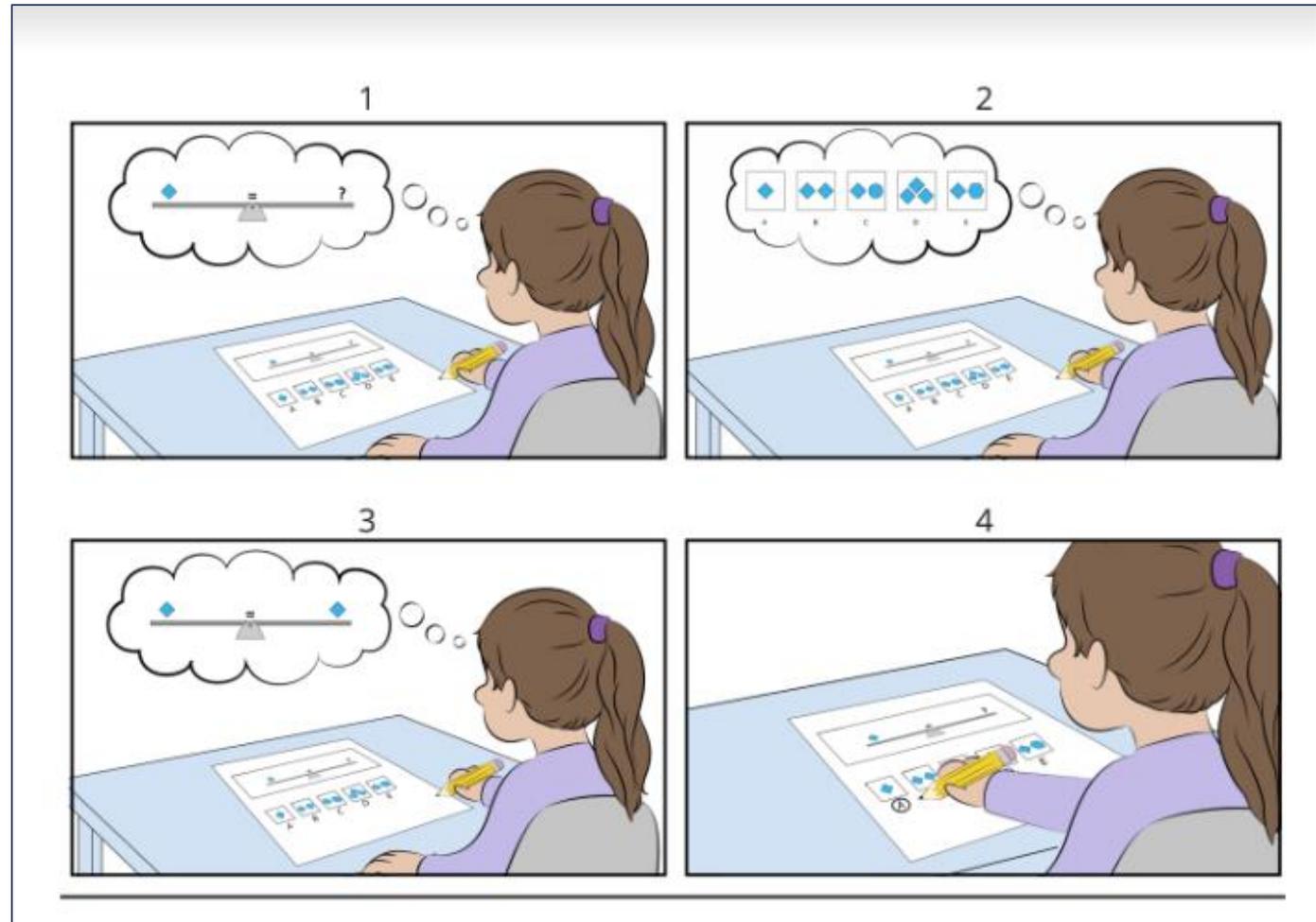
Naglieri Tests of General Ability
(Naglieri, Brulles & Lansdowne, 2021)

- ➢ Dina Brulles, Kim Lansdowne and I have constructed three new tests that will be used for identification of gifted students
- ➢ The focus of these tests is EQUITABLE ASSESSMENT of all students
- ➢ The tests are currently in norming phase
- ➢ The tests measure general ability using three types of content: Verbal, Nonverbal and Quantitative
  - Naglieri **Nonverbal** (Naglieri, 2021)
  - Naglieri **Verbal** (Naglieri & Brulles, 2021)
  - Naglieri **Quantitative** (Naglieri & Lansdowne, 2021)

Goals in Making the General Ability Test Battery

➤ Take English out of the testing environment

➤ Present test instructions using either pictorial or animated formats

➤ Create a Verbal test that can be solved using any language
- The test is based on a neuropsychological concept from A. R. Luria which demand identification of verbal concepts

➤ Create a Quantitative test that does not require language
- Several types of items are used to evaluate how well a student understands quantitative relationships

➤ Create a new version of nonverbal matrices
- New ways of constructing progressive matrices have been developed which demand understanding the relationships among graphical stimuli

Pictorial Instructions for All Students

➢ The paper forms for the Naglieri General Ability Test Battery have *pictorial directions* that greatly reduce the need for verbal instructions

➢ Additional explanation is permitted as needed

- Naglieri Nonverbal (Naglieri, 2021)
- Naglieri Verbal (Naglieri & Brulles, 2021)
- Naglieri Quantitative: (Naglieri & Lansdowne, 2021)

Animated Directions for All Students

➤ The online version of the *Naglieri General Ability Test Battery* have animated directions that greatly reduce the need for verbal instructions

➤ Additional explanation is permitted as needed

▪ Naglieri Nonverbal (Naglieri, 2021)

▪ Naglieri Verbal (Naglieri & Brulles, 2021)

▪ Naglieri Quantitative: (Naglieri & Lansdowne, 2021)
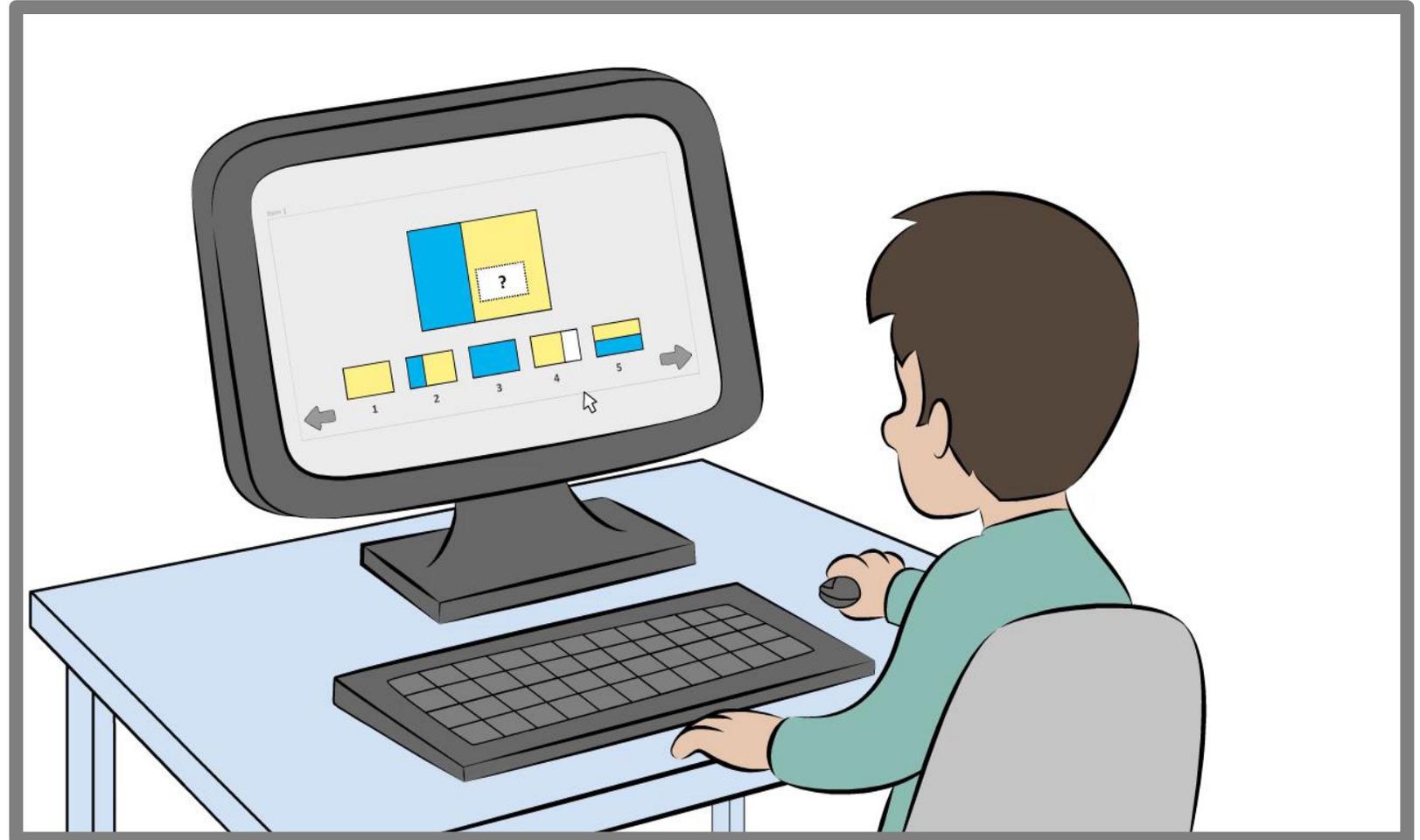
Naglieri Ability Test - Verbal

This test was modeled after an approach described by A. R. Luria (1966) to evaluate verbal conceptual thinking.

Luria (1982) stated that language involves, "a complex system of codes (p. 29)" where, "every word *designates a thing, an attribute, an action or a relationship* (p 34)."

The task, referred to as superfluous fourth, demands that a subject reason and identify which word does not belong with the others, for example, "rose, daisy, stem, tulip,".
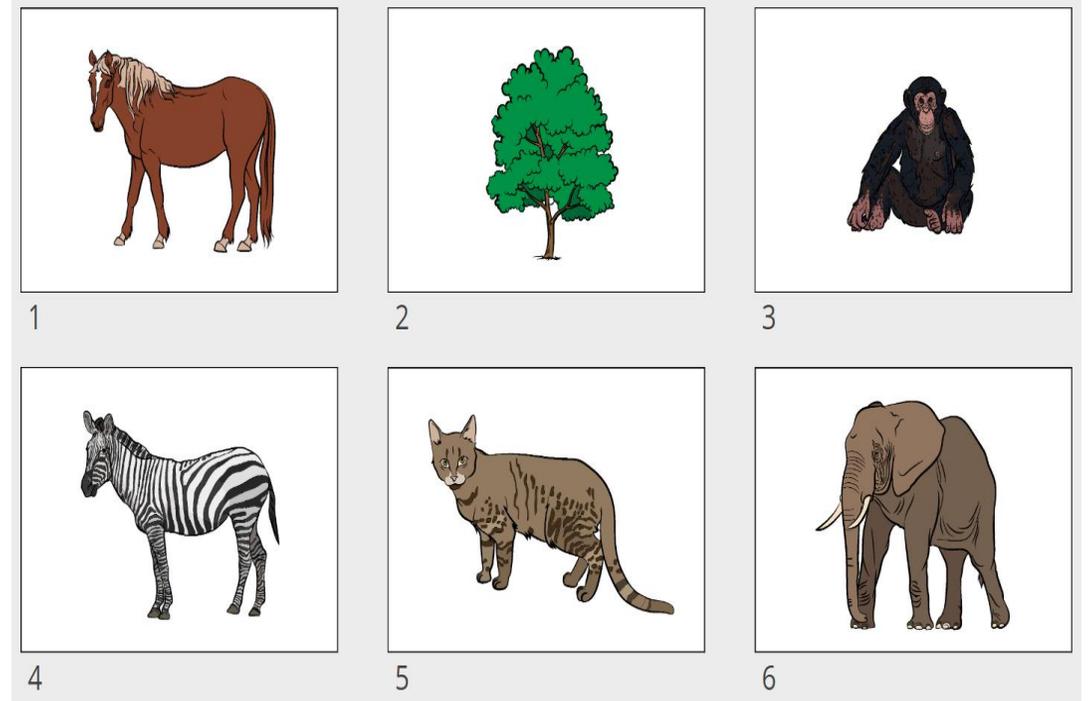
Authors: Jack Naglieri & Dina Brulles

Naglieri Ability Test - Quantitative

➢ These items demand analysis of sequences of numbers or relationships among a group of numbers. For example, 1 is to 2 (a difference of 1) as 3 is to … 4.

➢ These questions test a person's ability to understand relationships and patterns involving numbers, just as understanding relationships among shapes in the NAT-Nonverbal or verbal categories in the NAT-Verbal.
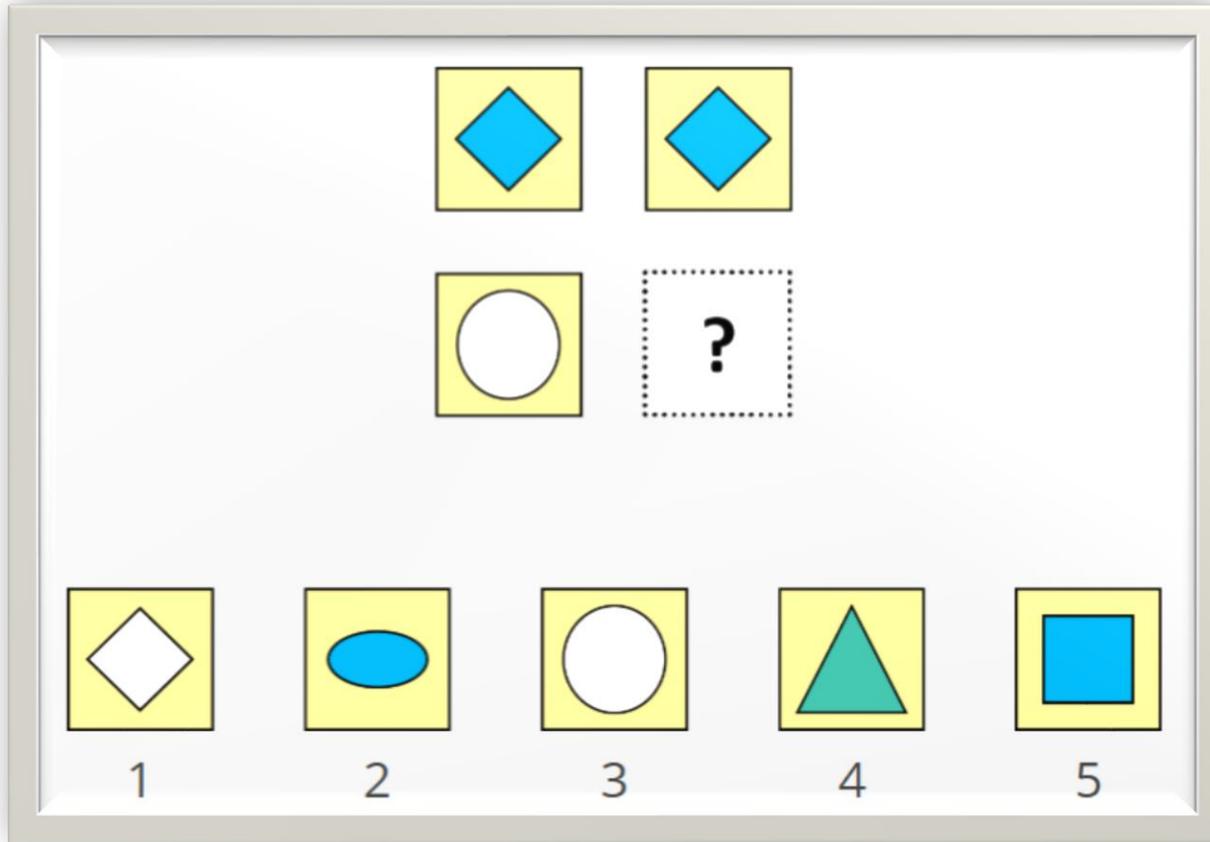

Authors: Jack Naglieri & Kim Lansdowne

Naglieri Ability Test - Non-verbal

- Online and paper versions
- Group administration
- Several NEW types of items have been developed
- Animated instructional video
- Interactive practice questions
- Minimal verbal directions
- Pre-K, Kindergarten, Grade 1, Grade 2, Grade 3/4, Grade 5/6, Grade 7-9, Grade 10-12

Naglieri General Ability Tests Pilot Study Results

- ➢ **VERBAL TEST**
  - ▪ 2,482 That closely matches the US population on key demographics

- ➢ **GENDER**
  - ▪ No difference between **males** and **females** for raw score across all forms

- ➢ **RACE/ETHNICITY**
  - ▪ No differences among **White, Black, & Hispanic** for raw score across all forms

- ➢ **PARENTAL EDUCATION LEVEL**
  - ▪ 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

- ➢ **QUANTITATIVE TEST**
  - ▪ 2,841 That closely matches the US population on key demographics

- ➢ **GENDER**
  - ▪ No difference between **males** and **females** for raw score across all forms

- ➢ **RACE/ETHNICITY**
  - ▪ No differences among **White, Black, & Hispanic** for raw score across all forms

- ➢ **PARENTAL EDUCATION LEVEL**
  - ▪ 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

- ➢ **NONVERBAL TEST**
  - ▪ 3,630 That closely matches the US population on key demographics

- ➢ **GENDER**
  - ▪ No difference between **males** and **females** for raw score across all forms

- ➢ **RACE/ETHNICITY**
  - ▪ No differences among **White, Black, & Hispanic** for raw score across all forms

- ➢ **PARENTAL EDUCATION LEVEL**
  - ▪ 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

Conclusions: Testing and Social Justice

WECAN DO BETTER

Chose tests based on a social justice perspective

Know the research on the fairness of the tests you use

Universal screening gives all students equal opportunity to succeed

When using a collection of measures be mindful of the logic used for selection and the impact that has on the results
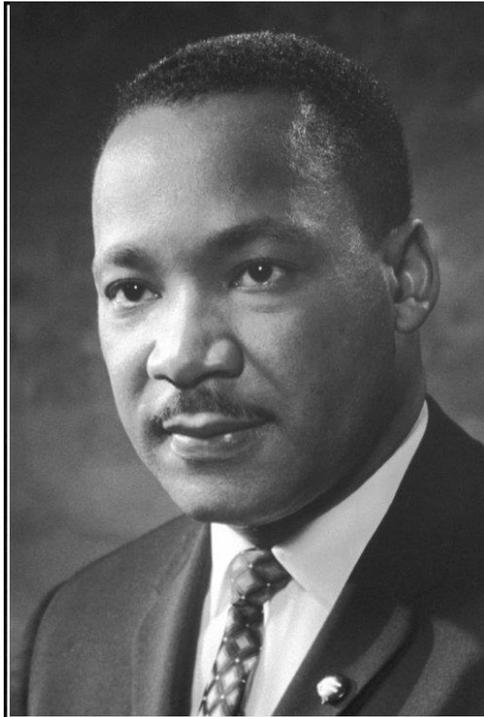
Outreach to parents and students is a must

Make sure the gifted instruction meets the needs of all gifted students

WE CAN DO BETTER !

Gifted Identification is a Social Justice Issue
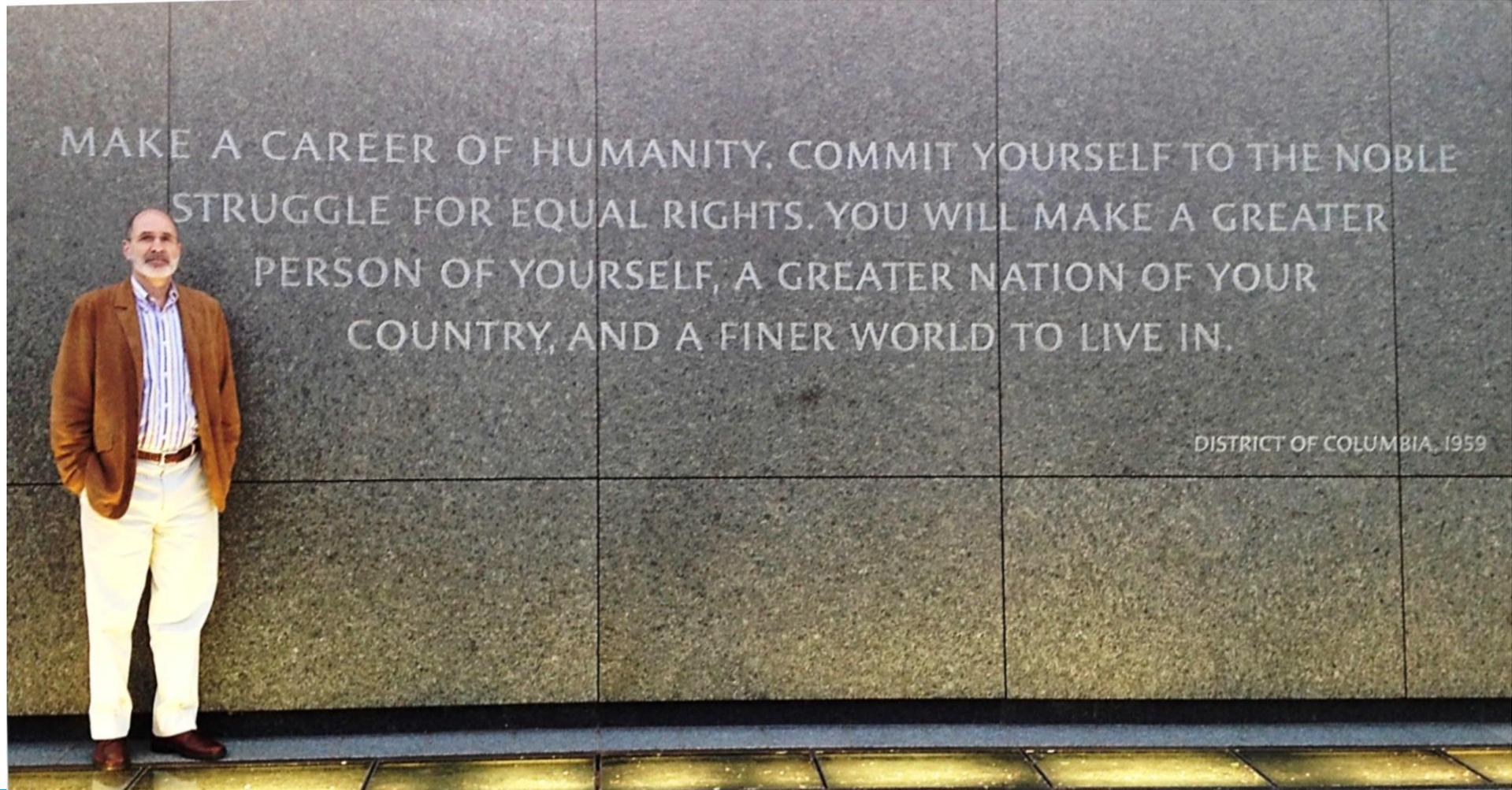
Social Justice: We Can Do Better

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 —

AZ QUOTES