
















A Personal Journey to Equitable Assessment of Intelligence: Measure Thinking not Knowing

Jack A. Naglieri, Ph.D. 

jnaglieri@gmail.com jacknaglieri.com NaglieriGiftedTests.com

Disclosures of Tests & Books I have Published related to Equity (1985 – 2022)

Group Administered							
Individually Administered							

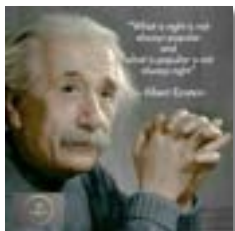
JackA.Naglieri.com

FOR MORE INFORMATION PLEASE GO TO MY WEB PAGES

	
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The BIG picture

- The comprehensive assessments we provide change the course of a student's life
- The intelligence test we choose has a profound influence on what we learn and say about the student
- Equitable assessment can be achieved if we choose tests that measure how well a student **THINKS** in a way that is not confounded by what a student **KNOWS**



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Topics for Today

My Equity Journey

Historical Context

The American Psychological Association Apology

How to Improve Intelligence Tests

Closing remarks

Jack Wagner



Introduction


- My interest in how people learn began when I taught guitar.



Jack Wagner

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<p>Undergrad (1968-1972)</p> <ul style="list-style-type: none"> • C. W. Post of Long Island Univ. • Behavior Modification • Neuropsych class • Psychoanalytic perspective • Tests & Measurement 	<p>School Psych Degree (1975)</p> <p>Saint John's University</p> <ul style="list-style-type: none"> • John Carboy – Neuropsychology of Learning Disabilities & A. R. Luria • Rita Dunn – Modality based conceptualization of learning 
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Did You Ever Wonder...

Why the INTELLIGENCE test you give has...


VOCABULARY INFORMATION SIMILARITIES

ARITHMETIC

subtests?

Traditional IQ and Achievement Tests

- When I started working as a school psychologist in 1975...I noticed that parts of the intelligence tests we used were VERY similar to parts of the achievement tests
 - For example, the Achievement Test had a General Information and Arithmetic subtests JUST LIKE THE WISC!
- THAT DID NOT MAKE SENSE



1975 Charles Champagne Elementary, Bethpage, NY

It seemed wrong to measure **intelligence** using questions that clearly measured **achievement**

University of Georgia 1977-1979

- Alan and Nadeen Kaufman
- Opportunity to create
- My interest in intelligence test development

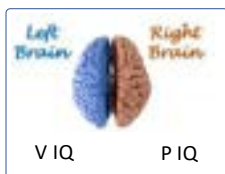


2022 UGA Lifetime Achievement Alumni Award

Jack Kaufman

Assistant Professor at Northern Arizona Univ.

- Teaching intellectual assessments in the school psychology program at Northern Arizona University 1979
- Lecture about genetic attributes of Native Americans' intelligence
- An absurd position



Jack Kaufman

- 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:

In the 400-R, Ananda scored a performance IQ of 88 on which falls in the average range of intelligence and at the 93rd percentile rank in comparison to the children her age for the standardization sample. In contrast, her 300-R score of average non-verbal intelligence was at the 50th percentile rank. This score is quite low and indicates that her level of intelligence was not as high as her verbal IQ score. This score can be used to measure the degree of verbal intelligence versus non-verbal ability. In fact, due to the large difference between these scores, an Full Scale IQ was calculated.


Within the WISC-R there are two groups of Ananda 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.

WISC-V

Naglieri, J.A. (1982). Does the WISC-R measure verbal intelligence for non-English speaking children? *Psychology in the Schools, 21* 478-479.

Naglieri, J.A., & Yazzie, C. (1983). Comparison of the WISC-R and PPVT-R with Navajo children. *Journal of Clinical Psychology, 39*, 598-600.

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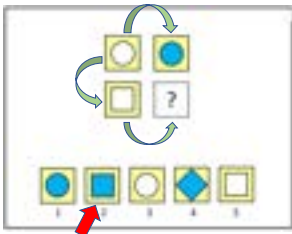


Equitable Assessment of Intelligence

- The questions I had about WISC subtests made me critical of the way intelligence is measured
- Solution?
- Measure how well a person solves problems by **THINKING** in a way that is not dependent upon **KNOWING**
- How can you measure THINKING?
- I started with a progressive matrices test

Jack Naglieri

Tests that Measure Thinking or Knowing?



Girl is woman as boy is to **man** ?

3 is to 9 as 4 is to **16** ?


C⁷ is to F as E⁷ is to **A** ?

Jack Naglieri

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Naglieri's Nonverbal Tests: 1985 to Present

- **First and Second Versions**



MAT Short and Expanded Forms 1985

- The goal: equitable measurement of *general ability* for ALL students, especially "intellectually gifted children from disadvantaged backgrounds (Naglieri, 1985, p. 3)."


Validity Results:

1. Males Females differences were trivial (< 1 point) on MAT:EF (452) & MAT:SF (N = 2,636)
2. Differences by Race were trivial (< 1 point) on MAT:EF (N = 110) and MAT:SF (N = 672)
3. MAT:SF correlations with reading and math achievement were substantial across grades K-12 (N = 3,022)


J.A. Naglieri

Naglieri's Nonverbal Tests : 1985 to Present


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




MAT Short and Expanded Forms 1985




Naglieri Nonverbal Ability Test 1997



NNAT - Individual, 2003



NNAT - 2 2008



NNATS 2016

NNAT Validity:

- No difference by sex, race or Ethnicity (and Equal ID rates) on EVERY VERSION OF THE NNAT
- The NNAT scores correlated significantly with Achievement & as well as the WISC!

The research on all these tests convinced me that measuring intelligence using items that measured how well students think in a way that is not influenced by what they know was an equitable way to measure **general intelligence 'g'**.

Tests with Equity as a Goal 1985-Present

Traditional Tests

1. Naglieri, J. A. (1985). *Matrix Analogies Test - Expanded Form*. San Antonio: The Psychological Corporation.
2. Naglieri, J. A. (1985). *Matrix Analogies Test - Short Form*. San Antonio: The Psychological Corporation.
3. Naglieri, J. A. (1997). *Naglieri Nonverbal Ability Test*. San Antonio, TX: The Psychological Corporation.
4. Naglieri, J. A., & Bardos, A. N. (1997). *General Ability Scale for Adults*. San Antonio, TX: Pearson.
5. Naglieri, J. A. (2003). *Naglieri Nonverbal Ability Test - Individual Form*. San Antonio, TX: Pearson.
6. Wechsler, D., & Naglieri, J. A. (2006). *Wechsler Nonverbal Scale of Ability*. San Antonio, TX: Pearson.
7. Naglieri, J. A. (2008). *Naglieri Nonverbal Ability Test - 2nd Edition*. San Antonio, TX: Pearson.
8. Naglieri, J. A. (2016). *Naglieri Nonverbal Ability Test - Third Edition*. San Antonio, TX: Pearson.

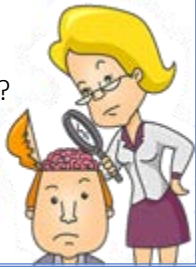
Second Generation

9. Naglieri, J. A., & Das, J. P. (1997). *Cognitive Assessment System*. Austin: ProEd.
10. Naglieri, J. A., Das, J. P., Goldstein, S. (2014). *Cognitive Assessment System Second Edition*. Austin, ProEd.
11. Naglieri, J. A., Das, J. P., & Goldstein, S. (2014). *Cognitive Assessment System Second Edition - Brief*. Austin, ProEd.
12. Naglieri, J. A., Morena, M. A., & Otero, T. M. (2017). *Cognitive Assessment System - Spanish*. Austin, ProEd.
13. Naglieri, J. A. (2022). *Naglieri General Ability Test: Nonverbal*. Markham, Canada: MHS.
14. Naglieri, J. A. & Brulles, D. (2022). *Naglieri Ability Test: Verbal*. Markham, Canada: MHS.
15. Naglieri, J. A. & Lansdowne, K. (2022). *Naglieri Ability Test: Quantitative*. Markham, Canada: MHS.

Keep in mind that nonverbal tests are fine to measure general ability, but school psychologists typically need to measure MORE than 'g'. (recommended: a multi-dimensional theory of intelligence based on brain function (PAIS)).

Two Questions:
 1. Why do we measure intelligence the way we do?
 2. Do the tests measure thinking or knowing?

The early history of IQ tests



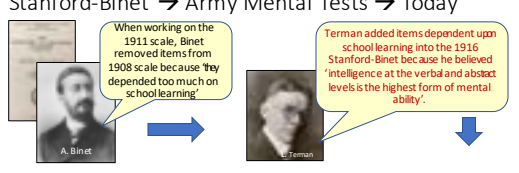
Jack Anglin 19

Topics for Today

- My Equity Journey
- Historical Context
- The American Psychological Association Apology
- How to Improve Intelligence Tests
- Closing remarks

Jack Anglin

Stanford-Binet → Army Mental Tests → Today



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

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

A. Binet

L. Terman

Jack Anglin 21

Lewis Terman 1916 Stanford-Binet

- Terman predicted that the Stanford-Binet would reveal "significant racial differences in general intelligence...which cannot be wiped out by any scheme of mental culture"

(Brookwood, 2021 p. 68)



- His aim was identification of low intelligence children and adults who would be involuntarily institutionalized and sterilized for the improvement of society

Brookwood, M. (2021). *The Orphans of Davenport*. New York: Norton & Company. See Chapter 4.

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Robert Yerkes – Army Mental Tests 1920

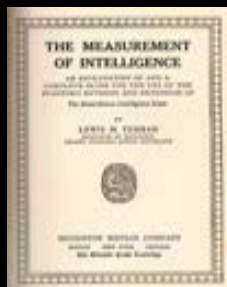
- Robert Yerkes, of Harvard University was president of the *American Psychological Association*
- and leader of the *Eugenics Section of the American Breeders' Association's Committee on the Inheritance of Mental Traits*
- which advocated institutional segregation and sterilization for persons with low intelligence.
- Co-author of the Army Mental Tests



Brookwood, M. (2021). *The Orphans of Davenport*. New York: Norton & Company. See Chapter 4.

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The intelligence test being used at that time was...the Stanford-Binet (Terman, 1916)



Florence Goodenough 1926

Stanford-Binet "IQ by Racial Stock"



RACIAL DIFFERENCES IN THE INTELLIGENCE OF SCHOOL CHILDREN
BY FLORENCE L. GOODENOUGH
Professor of Child Psychology, University of Minnesota

TABLE I
Differences in Intelligence Quotients in Racial Stock

Race	Age 5		Age 6		Age 7		Age 8		Age 9		Age 10		Age 11		Age 12	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range
White	75.0	50-100	80.0	55-105	85.0	60-110	90.0	65-115	95.0	70-120	100.0	75-125	105.0	80-130	110.0	85-135
Negro	65.0	40-90	70.0	45-95	75.0	50-100	80.0	55-105	85.0	60-110	90.0	65-115	95.0	70-120	100.0	75-125
Hispanic	60.0	35-85	65.0	40-90	70.0	45-95	75.0	50-100	80.0	55-105	85.0	60-110	90.0	65-115	95.0	70-120

Raymond Cattell - 1933



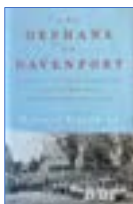
• spoke out against race mixing, and he lobbied to overturn the 1954 Brown v. Board Education



Bookwood, M. (2021). The Origins of Davenport. New York: Norton & Company. See Chapter 4.

The Origin of IQ tests & Eugenics


- In the early 1900s (until the 1960s) low IQ scores were described as **Morons** (50-79), **Imbeciles** (20-49) and **Idiots** (below 20).
- During this time the "science" of eugenics was widely accepted, and the consequences of low IQ scores severe
 - institutionalized
 - forced sterilization of women



Eugenics 1914

Sterilization Laws from a Legal Standpoint

Frederick A. Fanning



Journal of the American Institute of Criminal Law and Criminology
Vol. 4, No. 3, 1914, pp. 303-324

Published by the American Institute of Criminal Law and Criminology, Chicago, Illinois


STERILIZATION LAWS FROM A LEGAL STANDPOINT
Frederick A. Fanning

In recent years the legislatures of New Jersey, New York, Illinois, Massachusetts, Iowa, Nevada, Washington and perhaps other communities have passed laws intended to prevent procreation by criminals, idiots, imbeciles and insane persons. The whole subject of the advisability of sterilization laws had its inception in what we may term the mental view of the problem requiring solution. According to this view the proper or best line to be drawn in the solution of the race problem is that hereditarily and criminally insane persons should be prevented from procreating their kind; secondly, that such prevention could be achieved by proper laws, and finally that a right and full recognition with such laws would result in comparatively few years, in a race of superior mind and mental health.


"It is for us to bring about a true enhancement of the public welfare...[for the] betterment of the race by methods which...shall be...the means of uplift to the whole people (p. 314)"

J. K. CRANFORD

IQ Tests Defined Intelligence




Edwin Boring: The Stanford-Binet became the **operational definition of intelligence**



Edith Spaulding & William Healy

The claim that we have measured hereditary intelligence has **no scientific foundation**

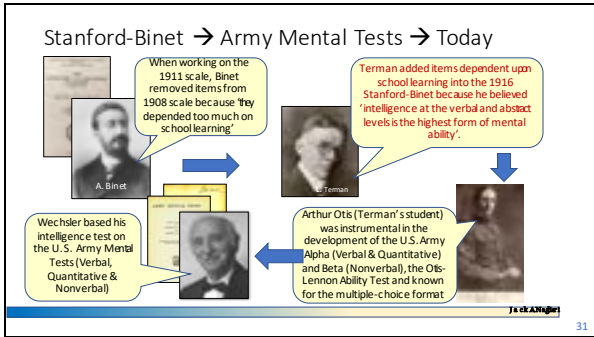
We cannot measure intelligence when we have never defined it.

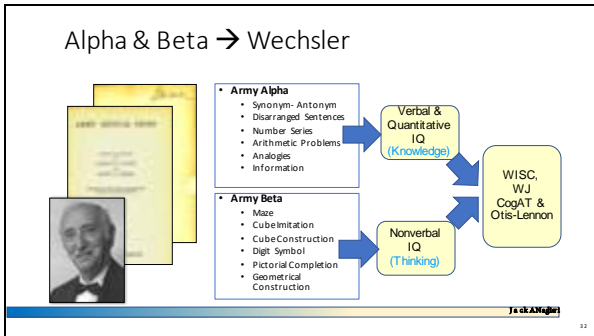


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The 1916 Stanford-Binet was different from the test Binet presented in 1911

How that created an equity problem





Wechsler's View of General ability

- Wechsler "believed that his Verbal and Performance Scales represented different ways to access *g* (general ability)",
- he never believed [in verbal and] nonverbal intelligence as being separate from *g*.
- 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)"

Jack Kaufman

General Ability Definition



• “we did not start with a clear definition of general intelligence... [but] borrowed from every-day life a vague term implying all-round ability and... we [are] still attempting to define it more sharply and endow it with a stricter scientific connotation” (p. 53, Pintner, 1923)”.

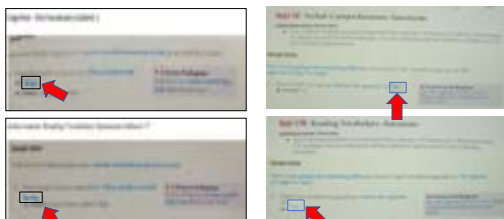
Pintner (Intelligence Testing, 1923)

CONCEPT OF GENERAL INTELLIGENCE 49
The Character of a Test of Intelligence. — Inferred from the theoretical discussion of general intelligence and by the empirical work of testing, we have arrived at certain requirements for a good test of intelligence.
1. Tests must be relatively new. — A good intelligence test must avoid so much as possible anything that is generally learned by the subjects tested. In a broad sense this means a differentiation between knowledge and intelligence. To use as a test of intelligence something that is commonly taught in school is to be faulty, because those children who have received the particular grade in which this is generally taught have memorized this fact, whereas other children of equal or greater intelligence may have had no opportunity to learn this same fact, simply because they may not have reached this particular grade in their school work. It



JackAngeles

Very Similar Items on “Different” WJ Tests




JackAngeles

Including *Knowledge* in "Ability" Tests & Equity

Stanford-Binet-5	WISC-V	WJ-IV	KABC-II	OLSAT	CogAT
<ul style="list-style-type: none"> • Verbal • Knowledge • Quantitative Reasoning • Vocabulary • Verbal Analogies 	<ul style="list-style-type: none"> • Verbal Comprehension • Vocabulary, Similarities, Information & Comprehension • Fluid Reasoning • Figure Weights • Arithmetic 	<ul style="list-style-type: none"> • Comprehension Knowledge: Vocabulary & General Information • Fluid Reasoning: Number Series & Concept Formation • Auditory Processing: Phonological Processing 	<ul style="list-style-type: none"> • Knowledge / GC • Riddles, • Expressive Vocabulary, • Verbal Knowledge 	<ul style="list-style-type: none"> • Verbal • Following directions • Verbal Reasoning • Quantitative • Verbal Arithmetic Reasoning 	<ul style="list-style-type: none"> • Verbal Scale • Analogies • Sentence Completion • Verbal Classification • Quantitative • 45 pages of oral instructions

J. K. KANIGER



Is my observation consistent with yours?


How are you feeling?

J. K. KANIGER



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

J. K. KANIGER



What information do we need?

Research on test bias and test equity to determine test fairness

How Psychometric Bias is Studied (e.g., Jensen's Bias in Mental Tests)



- reliability of internal consistency of items
- reliability of test/retest scores
- rank order of item difficulties
- item intercorrelations
- factor structure of test
- magnitude of the factor loadings & factorial invariance
- slope & intercept of the regression line
- correlation of raw scores with age
- item characteristic curve
- frequencies of choice of error distracters
- interaction of test items by group membership

Jack Anglin 41

Test Bias, Test Equity and Test Content


According to the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014) Psychometric TEST BIAS and TEST 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* ... even if there is no evidence of psychometric test bias.
- Evidence of EQUITY is examined by test content and mean score differences.

Jack Anglin 42

Race and Ethnic Average Score Differences by Ability Test



Traditional tests that include knowledge and 2nd-Generation Ability Tests that minimize knowing


Test	White	Black	Hispanic	Latino	Asian	Other
ACT	21.5	18.5	19.5	19.5	21.5	21.5
SAT	1150	1050	1080	1080	1150	1150
ACT Composite	21.5	18.5	19.5	19.5	21.5	21.5
ACT English	21.5	18.5	19.5	19.5	21.5	21.5
ACT Reading	21.5	18.5	19.5	19.5	21.5	21.5
ACT Science	21.5	18.5	19.5	19.5	21.5	21.5
ACT Writing	21.5	18.5	19.5	19.5	21.5	21.5
SAT Evidence-Based Reading and Writing	1150	1050	1080	1080	1150	1150
SAT Math	1150	1050	1080	1080	1150	1150
SAT Total Score	2300	2100	2160	2160	2300	2300

See Butler, D., Lansdowne, K. & Nagleri, J. A. (2022). Understanding and Using the National General Ability Tests: A Call to Equity in Gifted Education. Minneapolis, MN: Frequent Publishing for more details.

Note: Even though a test may not show psychometric bias (Morris, 2015) those tests with academic content that showcase mean score differences are not equitable and are unfair.

J. A. Nagleri

National Survey of Gifted Education



These tests have verbal and quantitative questions and lengthy verbal directions

Test	Verbal	Quantitative	Lengthy Verbal Directions
ACT	Yes	Yes	Yes
SAT	Yes	Yes	Yes
ACT Composite	Yes	Yes	Yes
ACT English	Yes	Yes	Yes
ACT Reading	Yes	Yes	Yes
ACT Science	Yes	Yes	Yes
ACT Writing	Yes	Yes	Yes
SAT Evidence-Based Reading and Writing	Yes	Yes	Yes
SAT Math	Yes	Yes	Yes
SAT Total Score	Yes	Yes	Yes

J. A. Nagleri

Numbers of Gifted Students Missed = 1,235,434

Category	Number of Students
White	21,235,434
Black	3,785,235
Hispanic	1,235,434
Latino	1,235,434
Asian	1,235,434
Other	1,235,434
Total	29,971,234

Percent of Schools that do not identify Additional non-white gifted students = 41.5% of 873,129 = 362,305

Total non-white gifted students missed = 1,235,434

J. A. Nagleri

OSEP Office of Special Education Programs

2021-22 State Trends: Rates and Identifying of Children with Intellectual Disabilities (ID)

Relative Risk Ratio of Students with Disabilities by Disability Category and by Specific Race and Ethnicity: Ages 3-18 (continued)

through 11/21/2022

https://sites.ed.gov/idea/osep-fact-facts-race-and-ethnicity-of-children-with-disabilities-served-under-idea-part-b/
 https://ida.america.org/ida-today/disproportionate-identification-of-students-of-color-in-special-education/

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Learning Loss During Covid and Intelligence Test Scores

- The average public-school student in grades 3-8 lost a half year of learning in math and a quarter in reading.
- Schools with highest percentage of students receiving federal lunch subsidies missed two thirds (66%) of a year of math learning.
- Schools with the fewest low-income students lost 10% of a year.
- Intelligence tests that demand knowledge are IMPACTED BY the academic learning loss
- All traditional intelligence tests with pre-covid norms are impacted!

EDUCATION RECOVERY SCORECARD

It is time to rethink the design and use of COVID-era assessment systems. It is time to consider whether we're measuring what we want to know.


Topics for Today

- My Equity Journey
- Historical Context
- The American Psychological Association Apology**
- How to Improve Intelligence Tests
- Closing remarks


J. Clark Najjar

American Psychological Association Apology

- 'APA recognizes the roles of psychology in promoting:
- racism
- and the harms that have been inflicted on communities of color
- And the ways measurement of intelligence has been systemically used to create the ideology of White supremacy (p. 2)'



J. K. O'Leary



What is the Practical Impact?

Psychologists attributed IQ test differences to the **people** instead of the **tests**



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

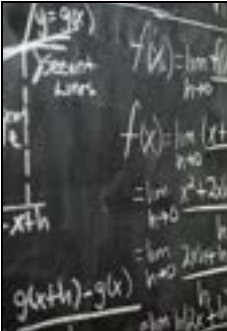
Change Demands Courage to Think Differently

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Topics for Today

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Jack Naglieri



How Can we Test the Hypothesis that Knowledge Confounds the Measurement of General Intelligence?

Create Verbal, Nonverbal and Quantitative tests that measure general intelligence that do not rely on knowledge and DO THE EQUITY RESEARCH!


Jack Naglieri

Can a Traditional Intelligence Test of General Ability be Equitable?

Measure 'Thinking' with minimal influence of 'Knowing'.

The Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative

VERBAL - Dina Brules, Ph.D. dbrules@gmail.com
 NONVERBAL - Jack A. Naglieri, Ph.D. jnaglieri@gmail.com
 QUANTITATIVE - Kim Lansdowne, Ph.D. Kimberly.Lansdowne@asu.edu



Jack Naglieri

Naglieri General Ability Tests

Jack A. Naglieri, Dina Brulles & Kimberly Lansdowne (2022)



We explicitly made tests for equitable identification of students from diverse cultural, linguistic, or socioeconomic backgrounds using the traditional Verbal, Nonverbal and Quantitative formats to measure general ability:

- Animated instructions remove the need for verbal comprehension of directions,
- Test questions that do not require academic knowledge,
- Verbal and Quantitative test questions that can be solved using any language,
- A multiple-choice response removes the need for verbal expression.



JackA.Naglieri

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Three tests of general ability that measure how well a student can *think* to arrive at the answer rather than what they *know*.



JackA.Naglieri

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JackA.Naglieri

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Research Evidence of Equity

Selvamman, M., Paozza, A., Solomon, J., Naglieri, J.A., & Schmidt, M. T. (submitted for publication, Nov. 2020). Race, Ethnic, Gender, and Parental Education Level Differences on Verbal, Nonverbal, and Quantitative Naglieri General Ability Tests: A Diverse 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 the 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 the 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 the 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

John Naglieri

Race and Ethnic Differences by Ability Tests




Traditional and 2nd-Generation Ability Tests

Test	White	Black	Hispanic
Verbal	100	95	90
Quantitative	100	95	90
Nonverbal	100	95	90

See Bullies, 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 Press Publishing for more details.

Note: Even though a test may not show psychometric bias those who score with significant differences still show large means and differences are not equitable and are unfair.

To understand learning differences, we need to measure MORE than 'g'. PASS theory as measured by the CAS2 provides a way to measure four distinct neurocognitive abilities to measure 'Thinking' with minimal demands of 'Knowing'.



The test you choose **determines** the **results** you receive, the **decisions** you make, and the **future** of that student.


BUT – A test of GENERAL ABILITY IS **NOT SUFFICIENT** FOR Detection of, for example, a Learning Disability

What is the Practical Impact?

Topics for Today

- My Equity Journey
- Historical Context
- The American Psychological Association Apology
- How to Improve Intelligence Tests**
- Closing remarks

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Five Key Attributes of a Second-Generation Intelligence Test

1. **Start** with a **THEORY** of intelligence based on the **BRAIN**
2. Ensure that the test questions measure **THINKING**
3. Ensure that **KNOWING** is minimized
4. Test the **TEST** – Do not advocate in advance of the science
5. Provide research to demonstrate that the test is equitable, interpretable beyond the total score, yields profiles for strengths and weaknesses, and leads to intervention

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PASS Neurocognitive Theory



- **P**lanning = THINKING ABOUT HOW YOU DO WHAT YOU DECIDE TO DO
- **A**ttention = FOCUSED THINKING AND RESISTING DISTRACTIONS
- **S**imultaneous = THINKING ABOUT HOW THINGS GO TOGETHER (BIG PICTURE)
- **S**uccessive = THINKING ABOUT THE SEQUENCE

PASS = 'basic psychological processes'
 NOTE: Easy to understand concepts!

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PASS Comprehensive System

(Naglieri, Das, & Goldstein, 2014)



Support for INTERPRETATION OF THE FOUR PASS Scales



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

Papadopoulos, et al., 2023



- Our results unambiguously support the notion that intelligence is not a unidimensional entity but a composite of distinct cognitive processes...which posits separate cognitive domains for Planning, Attention, Simultaneous and Successive processing... [these] emerged as the most fitting representation of intelligence [and] the best fit to the data.
- This outcome reinforces the notion that intelligence is a multifaceted construct, with various cognitive abilities working in concert, corroborating previous findings (e.g., Das & Kirby, 2022; Naglieri, 2015; Papadopoulos et al., 2018).

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

Discrepancy between high and low processing scores

Discrepancy between high processing and low achievement

Consistency between low processing and low achievement

Significant Discrepancy

PASS Processing and Academic Strengths

Academic Skills Weakness(es)

PASS Processing Weakness(es)

Consistent Scores

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Patterns of Strengths & Weaknesses

These profiles across tests is very revealing - PASS works

ADHD (Low Planning)

ASD - Low Attention

Dyslexia - Low Successive

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PASS Research

Georgiou, G., Guo, K., Naveenkumar, N., Vieira, A. P. A., & Das, J. P. (2019). PASS theory of intelligence and academic achievement: A meta-analytic review. *In press Intelligence*.

- "The CAS is highly correlated with reading and math."
- "The correlations are significantly stronger ... than the correlations reported in previous meta-analysis for other measures of intelligence" (e.g., Peng et al., 2019; Roth et al., 2015). (e.g., WISC that include tasks (e.g., Arithmetic, Vocabulary)..."
- "If we conceptualize intelligence as ... [PASS] cognitive processes that are linked to the functional organization of the brain" it leads to significantly higher relations with academic achievement."
- "and these processes have direct implications for instruction and intervention..."

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Race and Ethnic Differences by Ability Tests

Traditional and 2nd-Generation Ability Tests

See Bullock, D., Lansdowne, K. & Nagler, J. A. (2022). Understanding and Using the Nagler General Ability Tests: A Call to Equity in Gifted Education. Minneapolis, MN: Freshlight Publishing for more details...

Note: Even though a test may not show psychometric bias those tests with academic content that show large means are differences are not equitable and are unfair.

	IQ Score	IQ Percentile
White	115.0	90.0
Black	100.0	50.0
Hispanic	105.0	75.0
Asian	110.0	80.0
Latino	108.0	78.0
Other	102.0	60.0
Mean	105.0	75.0
Standard Deviation	15.0	10.0

CAS2 IS THE MOST EQUITABLE INTELLIGENCE TEST

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

Change Demands Courage to Think Differently

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

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WE CAN DO BETTER

We Must do Better

Maybe It's Time to Let the Old Ways Die



NYASP 2022
Legends in School
Psychology Award
Interview

JackA.Naglieri

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