Nonverbal Assessment and Gifted Identification: Challenges, Solutions and the NNAT2

Jack A. Naglieri, Ph.D.
Research Professor, University of Virginia
Senior Research Scientist, Devereux Center for Resilient Children
jnaglieri@gmail.com
www.jacknaglieri.com
www.Nnat2.com

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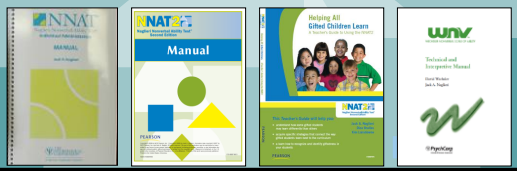
Relevant Disclosures

- I am the author of the Naglieri Nonverbal Ability Tests (Naglieri, 1997; 2003, 2009) and Wechsler Nonverbal Scale of Ability (2006)
- I am coauthor of Helping All Gifted Children Learn (Naglieri, Brulles, & Lansdowne, 2009)



Presentation Topics

- Identification of Gifted and Talented: The lesson from U-46 Elgin, Illinois court case
- What does a nonverbal test measure?
- NNAT2

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- Does NNAT work?
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My Approach

- I began my work in gifted in 1985 with the publication of the first edition of the Naglieri Nonverbal Ability Test (NNAT)
- In order to have a scientific basis for what I would say, I did research to answer the following questions:
  - Does the NNAT work for minorities?
  - Does the NNAT work for ELL students?
  - Does the NNAT work for males and females?

Does the NNAT work for minorities?

Psychological Assessment
2000, Vol. 12, No. 3, 328–334

1040-3590/00/$5.00 DOI: 10.1037//1040-3590.12.3.328

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.

Accurate assessment of intelligence for people from diverse cultural and linguistic backgrounds has been a topic of great debate and interest for some time (Sattler, 1988). To effectively evaluate diverse populations, researchers have widely used tests that comprise nonverbal, geometric designs arranged in a progressive matrix because they are considered culturally reduced in their content (Jensen, 1980; Naglieri & Prewett, 1990; Sattler, 1988). For ex- as psychometric issues such as internal and test–retest reliability (Jensen, 1980; Naglieri, 1985a, 1985b; Naglieri & Prewett, 1990; Nicholson, 1989). In response to these needs, other progressive matrix tests have become available. This includes the Test of Nonverbal Intelligence (Brown, Sherbenou, & Johnsen, 1990), the Matrix Analogies Test—Short Form (MAT–SF; Naglieri, 1985b) and Expanded Form (MAT–EF; Naglieri, 1985a), the Naglieri

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	103.9	0.3

Does the NNAT work for minorities?

- Jack A. Naglieri & Donna Ford (2003).
- Increasing Identification of Gifted Minority Children Using the Naglieri Nonverbal Ability Test (NNAT).
- *Gifted Child Quarterly.*

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

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Does the NNAT work for minorities?

GIFTED IDENTIFICATION

95th %tile

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.

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Does the NNAT work for ELL students?

Naglieri, Booth, & Winsler (2004). Comparison of Hispanic Children with and without Limited English Proficiency on the NNAT. *Psychological Assessment.*

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

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

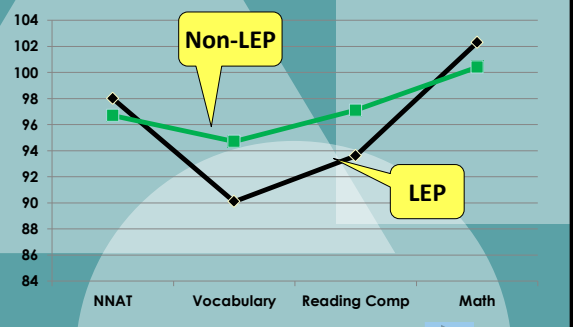
Adam Winsler
George Mason University

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; 1997). 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 value of a nonverbal test for evaluation of diverse populations was noted by Yoakum and Yerkes more than 80 years ago: "Men who fail in alpha [the verbal tests] are sent to beta [the nonverbal tests] in order that injustice by reason of relative unfamiliarity with English may be avoided" (p. 19). The Beta tests and other similar nonverbal tests have, therefore, served an important role in effective assessment of diverse populations because their content is

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, and shows good prediction of achievement. Naglieri and Ronning (2000a) provided a detailed study of mean score differences between matched samples of White (*n* = 2,306) and Black (*n* = 2,306), White (*n* = 1,176) and Hispanic (*n* = 1,176), and White (*n* = 466) and Asian (*n* = 466) children on the NNAT. Only small differences were found between the

Hispanic Children LEP and Non-Lep



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Does the NNAT work for males & females?

Available online at www.sciencedirect.com
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INTELLIGENCE
Intelligence 34 (2006) 253–260

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

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Available online 14 November 2005

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)

Does the NNAT work for males & females?

Table 2

Chronological Ages and NAI Scores for Males and Females by NNAT Levels

	Males			Females			
Levels	*M*	*SD*	n	*M*	*SD*	*n*	NAI difference
A	100.0	*15.5*	2,912	98.9	*16.1*	2,803	1.1
B	99.6	*16.0*	3,412	100.9	*15.8*	3,384	-1.3
C	98.9	*15.4*	4,044	98.6	*15.5*	4,068	0.3
D	100.8	*16.7*	8,016	100.5	*15.5*	7,984	0.3
E	99.0	*16.5*	7,716	99.9	*15.4*	7,556	-0.9
F	99.6	*17.1*	8,878	100.3	*15.9*	9,286	-0.7
G	100.3	*17.0*	4,656	99.6	*14.7*	5,065	0.7

Reactions…

- The NNAT illustrated the advantage of using a nonverbal test of general ability to find 'gifted' students (smart who may not be high achieving)
- Some argued that a student *must* be 'academically gifted' (i.e. have high achievement)
  - This is the essence of the objection to NNAT

An Unexpected Objection to NNAT

Gifted Child Quarterly, 2005, V 49

Review of Naglieri and Ford (2003): Does the Naglieri Nonverbal Ability Test Identify Equal Proportions of High-Scoring White, Black, and Hispanic Students?

David F. Lohman
University of Iowa

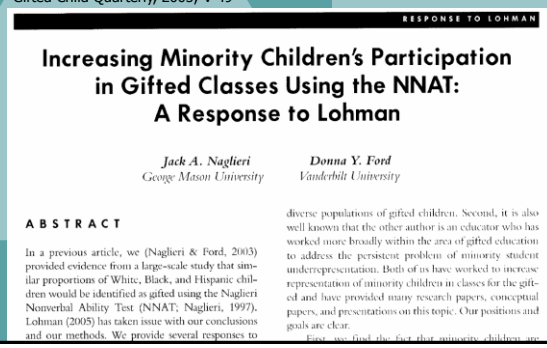
ABSTRACT

In a recent article in this journal, Naglieri and Ford (2003) claimed that Black and Hispanic students are as likely to earn high scores on the Naglieri Nonverbal Ability Test (NNAT; Naglieri, 1997a) as White students. However, the sample that Naglieri and Ford used was not representative of the U.S. school population as a whole and was quite unrepresentative of ethnic subdren, especially over ability tests that also have verbal and quantitative sections. They argue that, because verbal and quantitative abilities are developed through schooling, tests that measure these abilities would be inappropriate for identifying academically gifted minority students.

Strong claims have been made for the NNAT. The test is said to be culture fair (Naglieri, 1997b); to show, at most, small and inconsequential mean differences between minority and White students (Naglieri &

Our Reply

Gifted Child Quarterly, 2005, V 49



RESPONSE TO LOHMAN

Increasing Minority Children's Participation in Gifted Classes Using the NNAT: A Response to Lohman

Jack A. Naglieri
George Mason University

Donna Y. Ford
Vanderbilt University

ABSTRACT

In a previous article, we (Naglieri & Ford, 2003) provided evidence from a large-scale study that similar proportions of White, Black, and Hispanic children would be identified as gifted using the Naglieri Nonverbal Ability Test (NNAT; Naglieri, 1997). Lohman (2005) has taken issue with our conclusions and our methods. We provide several responses to

diverse populations of gifted children. Second, it is also well known that the other author is an educator who has worked more broadly within the area of gifted education to address the persistent problem of minority student underrepresentation. Both of us have worked to increase representation of minority children in classes for the gifted and have provided many research papers, conceptual papers, and presentations on this topic. Our positions and goals are clear.

First, we find the fact that minority children are

The Essence of the Disagreement

- Is gifted high ability regardless of academic skill level?
- Or is gifted better described as "academically gifted" or what Naglieri, Brulles & Lansdowne (2011) term "talented"

Arguments continue… but now they are a moot point

Court Decision about Testing ELL Students for Gifted Programs

Presentation Topics

- Does NNAT work?
- Identification of Gifted and Talented: The lesson from U-46 Elgin, Illinois court case
- What does a nonverbal test measure?
- NNAT2

Illinois School District U-46

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,

v.

BOARD OF EDUCATION FOR ILLINOIS SCHOOL DISTRICT U-46,

Defendant.

No. 05 C 0760

Judge Robert W. Gettleman

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Illinois School District U-46

- Main question:
  - Does the District's gifted program unlawfully discriminate against minority students?
  - **Answer: Yes**

Whether there is any merit to the District's argument depends on whether the named plaintiffs' claims are defined generally or specifically. Their general claims are that U-46 is a discriminatory school district that acts to keep whites and Minority Students separate. The District accomplished this, according to plaintiffs, in many ways, but the net result is that each Minority Student suffered the indignities of segregation and, under Brown v. Bd. of Education, 347 U.S. 483 (1954), each Minority Student in the District would have standing to challenge all of the segregational aspects and actions of the District.

Illinois School District U-46

- Plaintiffs argued that the testing was faulty…

challenge the manner [illegible] the District identified gifted students. Specifically, plaintiffs spent a large part of their case establishing that the District's method of identifying gifted students effectively eliminated from consideration many Minority Students simply because the tests used by the District measured achievement based on verbal skills. According to plaintiffs, every Minority Student, particularly Hispanics, were tested under these faulty procedures.

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Illinois School District U-46 (pg. 22)

- The district had a separate GT program for Hispanic students
- White and Hispanic programs used the same curriculum

gifted program. For many years, the District has run a separate program especially for Hispanic students who are identified as gifted. This program is known as SET/SWAS ("SET" stands for "Spanish English Transition"), and its classes are taught in Spanish and English by bilingual teachers. SWAS classrooms are located in three elementary schools that plaintiffs claim are predominately white. SET/SWAS classrooms are located in two schools that plaintiffs claim are predominately Minority. Both the SWAS and SET/SWAS programs are voluntary, and both teach the same academic curriculum.

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Illinois School District U-46 (pg. 23)

- Court decision: A segregated program for gifted Hispanic students was not necessary

The District's reasoning behind operating a separate, segregated program is that, in its view, these gifted students were not English proficient enough to perform well in the higher achieving gifted program classes. Although this sounds like it might be a debatable educational judgment, the court finds that the District has not met its burden of proving that a segregated program like SET/SWAS is necessary to educate gifted Hispanic students. Put another way, the District has failed to establish that the SET/SWAS program was narrowly tailored to further a compelling governmental interest.

Illinois School District U-46 (pg. 24)

- Students had to score 92%tile on a test of verbal and math skills which is biased toward ESL Hispanic students, NNAT was not enough

The students for the mainstream elementary SWAS program are identified initially by scoring 92%[21] or greater on an achievement test known as the MAP test,[22] which plaintiffs' witnesses credibly demonstrated favored children with higher verbal skills and disfavored Minorities. Thus, gifted children for whom English is a second language would likely score lower on a MAP test than other available tests such as the non-verbal, culturally neutral Naglieri Nonverbal Aptitude Test, which plaintiffs' expert testified identified gifted students without a bias towards those students with higher English verbal skills.

Illinois School District U-46 (pg. 24)

- Court finds that MAP (achievement) scores were the primary factor in deciding GT placement

Although the parties presented conflicting evidence regarding the degree to which the District relied on the MAP scores to identify children for the elementary SWAS program, the court finds that the weight of the evidence supports plaintiffs' contention that the MAP scores were the primary tool used to place students in elementary SWAS. Thus, unless a child scored 92% or more on the MAP, he or she was generally not considered for further testing and evaluation to determine whether he or she was eligible for the mainstream gifted SWAS

Illinois School District U-46 (pg. 24)

- Even though 'the nonverbal Naglieri test' was included, MAP scores and the CogAT were an obstacle

program. Children were chosen for the SET/SWAS program by their scores on the non-verbal Naglieri test, a Spanish language achievement test (Logramos) and classroom observations by teachers and specialists, along with their MAP scores.

Illinois School District U-46

- The matrix used to find students for the regular gifted program relied on the MAP, CogAT, and teacher recommendation
- A child can be gifted and not a high achiever

the District used what it termed a weighted "matrix" to identify students for the mainstream SWAS program that included the MAP scores, performance on the Cogat[26] test, and teacher and parent recommendations, the court credits Dr. Ford's opinion that this procedure produces discriminatory results because it relies too heavily on achievement criteria. As plaintiffs have demonstrated, a child can be a high achiever without being gifted, and can be gifted without being a high achiever.

[26]The Cogat (Cognitive Abilities Test) is another widely-used achievement test that emphasizes verbal skills.

Illinois School District U-46 (pg. 25)

- Of all students identified as gifted there were only 2% Hispanics in a district of 40% Hispanics

The results of this process were predictable. For example, in the school year 2006-2007--and 1,363 African-American students constituted 6.3% -- only five of the 231 students enrolled in the mainstream SWAS program (2%) were Hispanic, and only 2 students (less than 1%) were African-American. S[illegible]w numbers were recorded in the school years from 2007 through

some of the methodology employed by plaintiffs in offering the[illegible]s, there is no doubt that Minority Students do not participate in the mainstream gifted programs in District U-46 at anything close to their proportion of the District's population.[24]

Illinois School District U-46 (pg. 25)

Because much of the evidence about the District's gifted program was presented through the parties' respective expert witnesses (plaintiffs' Dr. Donna Ford and defendant's Dr. [redacted]), the court will briefly discuss these experts. Initially, the court notes that both Dr. Ford and Dr. [redacted] are highly qualified, experienced professionals in the subject of gifted education. Based on their demeanor at trial and the thoroughness of their analyses, however, the court credits Dr. Ford's testimony over that of Dr. [redacted] in the many areas about which they disagree. Dr. [redacted], unlike Dr. Ford, appeared to be totally biased in favor of the District, improvement. She could find little fault with any aspect of the District's gifted program, and generally refused to acknowledge the obvious distinctions between the segregated SET/SWAS and the mainstream SWAS programs. Dr. [redacted]'s demeanor on the witness stand and reluctance to respond forthrightly to pertinent questions by plaintiffs' counsel diminished her credibility with the court.

Illinois School District U-46 (pg. 27)

Dr. Ford credibly opined that the best way to identify gifted children, as recognized by the NAGC, is to measure intelligence non-verbally (with a test such as the Naglieri) with language supports for children whose first language is not English. If a test such as the MAP is used, setting a standard of 90% or greater (as did the District) is far too high given cultural and language impediments to verbal skills; in Dr. Ford's opinion, if such a test is used at all, the threshold should be 80% rather than 90%. In addition, Dr. Ford found, and the court credits her testimony, that teacher recommendations are unreliable measures when used as an initial screening to identify gifted children. Although all of these criteria can be used in a "matrix" or mix of identifying information, over-reliance on verbal testing, such as utilized by the District, will exclude many gifted Minority Students.

Illinois School District U-46 (pg. 27)

- The disproportionately low number of minority children in the gifted SWAS program proves that the District's method of testing is discriminatory...
- With a population of approximately 40% Hispanic, the District should expect at least about 30% of the children in its mainstream gifted program to be Hispanic.
- The fact that **only 2%** of the children in SWAS were Hispanic
- These findings demonstrated to the court, that "**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**."

Helping Gifted Children Learn

- This presentation is about children with may not have the academic skills or command of the English language to do well in school, yet they are very smart – gifted
- These children can become very talented given the opportunity to learn
- There are many children like this in our country, and their numbers are growing

Assessment for Gifted Conclusions

- We have the tools to accurately identify gifted minority students
- In the slides that follow I will explain what a 'nonverbal' test is and why it works so well and what relevance scores have on such a test for classroom instruction.

One more thought

- I will not argue that
  - a nonverbal test should be used in isolation
  - that a verbal or quantitative test should not be used
- I am suggesting that
  - a child can be smart (gifted, high NNAT score) and have low achievement and be appropriate for gifted programming
- U-46 court case addressed these topics

What IS Gifted and Talented?

Clarification of Terms

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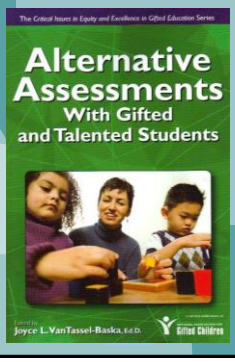
Gifted

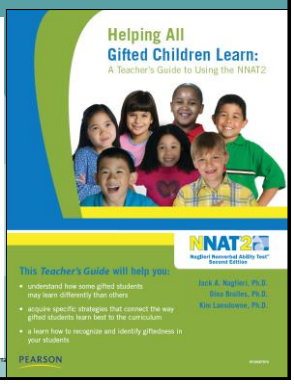
- What is gifted and how to identify these children
- Many authors and opinions



Gifted Defined?

Note

A review of information shows some general agreement regarding the needs of gifted students, but there is no consensus on a common definition of giftedness. The National Association for Gifted Children (NAGC) reports that "…there is, as yet, no universally agreed upon answer to this question [of what is 'giftedness']. Giftedness, intelligence, and talent are fluid concepts and may look different in different contexts and cultures. Even within schools you will find a range of personal beliefs about the word 'gifted,' which has become a term with multiple meanings and much nuance."



Gifted Defined by Naglieri, Brulles & Lansdowne (2008)

While our view of giftedness incorporates elements of all these definitions, it is most similar to Gagné's view. There are two broad dimensions that should be considered when gifted and talented children are defined. First, a *gifted* student is one who achieves a high score on a reliable and valid measure of ability. Second, a *talented* student is one who achieves high scores in some academic or performance-based areas.

Gifted and Talented

- If we are to conceptualize
  - gifted children as those with high ability
  - Talented children as those with high academic performance
- Then we have to carefully distinguish between "ability" and "achievement"

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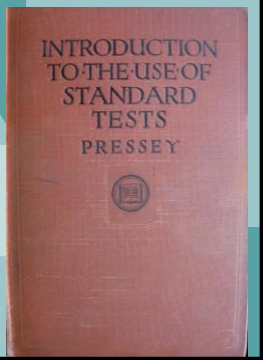
Ability vs Achievement

- "Measurement of Ability in "Writing English" "Silent Reading Ability" "Oral Reading Ability"
- Reading ***ability*** or knowing **how to read**?
- We often confuse ability and achievement even in our tests



Ability vs Achievement

- Ability is that mental activity (e.g. basic cognitive processing) that allows us meet the demands of our world
- What we acquire is a base of knowledge
- What we practice becomes a skill in using that knowledge
- Achievement is a multivariate outcome
  - Ability, education, motivation, personality, opportunity, social context, etc.

Jack A. Naglieri, Ph.D. George Mason Univ, Fairfax, VA 22030. naglieri@gmu.edu

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Gifted as academically defined

Rethinking Giftedness and Gifted Education: A Proposed Direction Forward Based on Psychological Science

Rena F. Subotnik[1], Paula Olszewski-Kubilius[2], and Frank C. Worrell[3]

[1]American Psychological Association, Washington, D.C; [2]Northwestern University; and [3]University of California, Berkeley

Summary

For nearly a century, scholars have sought to understand, measure, and explain giftedness. Succeeding theories and empirical investigations have often built on earlier work, complementing or sometimes clashing over conceptions of talent or contesting the mechanisms of talent development. Some have even suggested that giftedness itself is a misnomer, mistaken for the results of endless practice or social advantage. In surveying the landscape of current knowledge about giftedness and gifted education, this monograph will advance a set of interrelated arguments: The abilities of individuals do matter, particularly their abilities in specific talent domains; different talent domains have different developmental trajectories that vary as to when they start, peak, and end; and opportunity and psychosocial variables are malleable and need to be deliberately cultivated.

Our goal here is to provide a definition that is useful across all domains of endeavor and acknowledges several perspectives about giftedness on which there is a fairly broad scientific consensus. Giftedness (a) reflects the values of society; (b) is typically manifested in actual outcomes, especially in adulthood; (c) is specific to domains of endeavor; (d) is the result of the coalescing of biological, pedagogical, psychological, and psychosocial factors; and (e) is relative not just to the ordinary (e.g., a child with exceptional art ability compared to peers) but to the extraordinary (e.g., an artist who revolutionizes a field of art).

In this monograph, our goal is to review and summarize

Slides by Jack A. Naglieri, Ph.D. jnaglieri@gmail.com

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Ability vs Achievement & Gifted

- Why do we separate ability and achievement?
  - To identify children with high ability who may not be high in achievement
- The key questions are
  - HOW DO WE MEASURE ACHIEVEMENT?
    - With a test of knowledge and skills
  - HOW DO WE MEASURE ABILITY
    - With an intelligence test

Jack A. Naglieri, Ph.D. George Mason Univ, Fairfax, VA 22030. naglieri@gmu.edu

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Definitions of Gifted

- We should measure ability in ways that are minimally related to achievement
- Reduce the use of verbal / achievement laden measures of "ability"
- This will increase fair assessment of culturally and linguistically diverse children using nonverbal measures

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Why Nonverbal Tests?

- Does not require verbal skills
- Does not require achievement
- Can be given individually or in groups
- More appropriate for culturally and linguistically diverse populations
- Level the playing field
- They find gifted children not achieving to their potential

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"Nonverbal " Defined

Start with some items!

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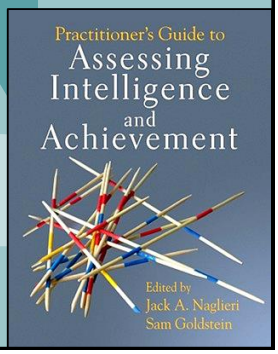
Nonverbal Measures of Ability

- In 1980 two nonverbal tests
  - Leiter & Raven
- Today we have many more (see Naglieri & Goldstein, 2009)



Nonverbal Measures of Ability

- Group Tests
  - Naglieri Nonverbal Ability Tests (1997 & 2008)
  - Naglieri Nonverbal Ability Test Online (2008)
- Individual Matrices Tests
  - CTONI
  - TONI
  - RAVEN
  - NNAT-Individual
- Individual Nonverbal Tests – Varied Content
  - Leiter-R
  - Universal Nonverbal Intelligence Test (1997)
  - Wechsler Nonverbal Ability Test (2006)

50

Nonverbal Tests

- Not all nonverbal tests have the same quality of standardization samples
- Some tests have materials that are more interesting than others
- Some tests have better psychometric qualities than others
- All these tests are built on the concept of general ability or 'g'

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Verbal Nonverbal Refers to the Content of the Tests

Where did the verbal nonverbal format come from?

A little history...

52

What the Naglieri Nonverbal Ability Test Measures

Understanding nonverbal assessment of general ability

53

NNAT-2

- 'The NNAT-2 is a brief, culture-fair, nonverbal measure of ability
- NNAT-2 items assess ability without requiring the student to read, write, or speak
- NNAT-2 uses abstract figural designs, and does not rely on verbal skills or achievement

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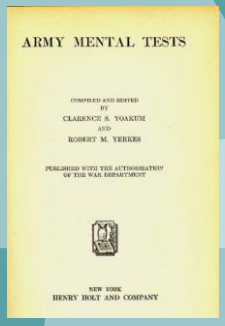
Conclusions

- Matrices tests
  - measure general ability by using nonverbal geometric designs
  - measure "general ability" nonverbally
  - not "nonverbal ability"
- Is verbal and nonverbal a theory of ability?

55

1927 Army Testing Program



- Yoakum & Yerkes (1920) summarized the methods used by the military to
  - classify people from many backgrounds by mental capacity
  - Based on Goddard revision of the Binet Yerkes-Bridges Point Scale Stanford revision of the Binet

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1920 Army Testing

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

Verbal & Quantitative

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

Nonverbal

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Verbal and Nonverbal

- Why have verbal tests?
  - These tests are highly related to achievement
- Why have nonverbal tests?
  - So many different types of people can be tested
- An example…

58

How did the Army's tests influece what we have today?

From the military to the middle school

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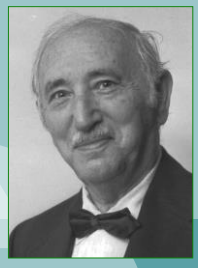
Army Testing Program?

- David Wechsler was a military examiner who worked at Fort Logan Texas in the early 1900s
- He administered the Army tests described by Yoakum & Yerkes (1920)



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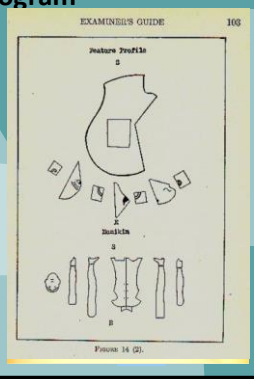
Army Testing Program

- Wechsler used the Army tests as a basis for his tests
- Wechsler's nonverbal tests were much like those included in the Army Beta

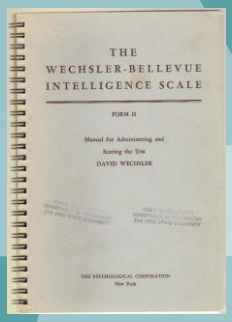

EXAMINER'S GUIDE 103

Feature Profile

Manikin

FIGURE 14 (2).

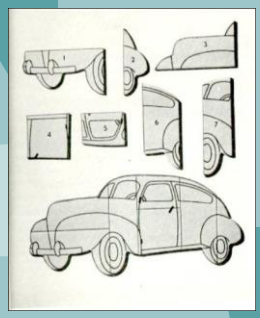
Wechsler-Bellevue (1939)


THE
WECHSLER-BELLEVUE
INTELLIGENCE SCALE

FORM II

Manual for Administering and
Scoring the Test
DAVID WECHSLER

THE PSYCHOLOGICAL CORPORATION
New York



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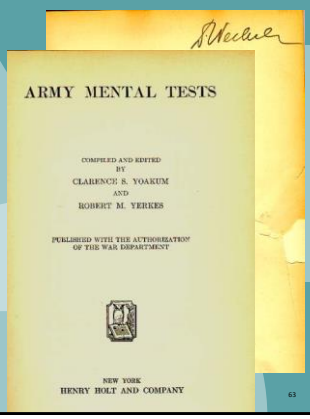
1927 Army Testing Program


ARMY MENTAL TESTS

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

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NEW YORK
HENRY HOLT AND COMPANY

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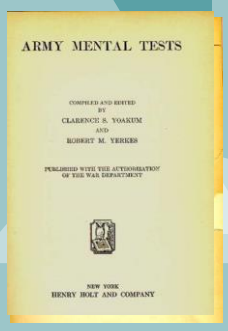
1927 Army Testing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Coding & Picture Completion

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.

Test 10.—Picture Completion

E. places material before S. as previously described. He then slowly points to the same boy in each of the pictures in succession to indicate the proper sequence of events. He next returns to the demonstrational picture, points to dressed and undressed foot and to empty space. Next he looks leisurely

65

Picture Arrangement & Block Design

Test 9.—Picture Arrangement

E. presents demonstrational set and allows S. to see it for about 15 seconds. Then, making sure that S. is attending, he slowly rearranges the pictures and points to each one in succession, attracti
of important
sents set (*a*),
to indicate th
stand, E. sho
to set (*b*). S
as (*a*), except

Test 4.—Cube Construction

(*a*) E. presents model 1 and the corresponding blocks, points to bottom, top, and sides of model; then places it upon the table and assembles the blocks rather slowly, turning each block over in the fingers and pointing to painted and unpainted sides. E. now presents the same model and the blocks in irregular order, then points in order to S., to the model, to the blocks, and nods affirmatively. E. repeats, if S. does not understand.

(*b*) E. presents model 2 with the nine blocks for its construction; shows S. bottom, top, and sides of model; then places it

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Digit Symbol (Coding) & Mazes

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.

Test 8.—The Maze

E. shows S. demonstration maze (*a*), and with his pencil proceeds to trace the shortest way out. At critical points he hesitates, moves pencil in wrong direction without marking, shakes his head, and continues to work in the right direction. He next presents test maze A, gives S. pencil, points to starting

Fairfax, VA 22030. nagleri@gmu.edu

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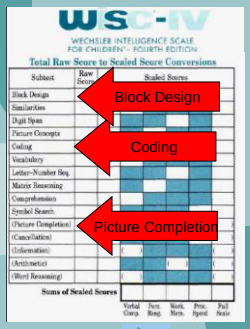
WISC-IV

- These nonverbal tests have a long history as measures of general ability
- Nonverbal tests have been shown to be effective measures of general ability



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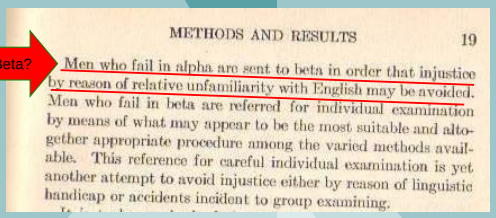
1927 Army Testing

Why Beta?



METHODS AND RESULTS 19

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.

Note there is no mention of measuring verbal and nonverbal intelligence

Slides by Jack A. Naglieri, Ph.D. Professor of Psychology, George Mason University. Fairfax, VA 22030. naglieri@gmu.edu

Verbal Nonverbal Intelligence?

- Verbal / Nonverbal is a practical division
- Advantages of Verbal tests
  - they correlate with achievement because they have achievement in them
    - Information, Vocabulary, Arithmetic
- Advantages of Nonverbal Tests
  - they correlate with achievement without having achievement in them
  - they treat everyone the same
- These don't measure Verbal Intelligence and Nonverbal Intelligence- they measure general ability

What a Nonverbal Test Measures

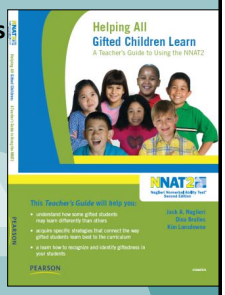
- "nonverbal assessment" describes the content of the tests used to measure general intelligence not a theoretical construct of "nonverbal ability" (Bracken & McCallun, 1998)
- There is no assumption that nonverbal, as opposed to verbal, *abilities* are being measured

What a Nonverbal Test Measures

- *general ability* is measured using nonverbal tests so that many individuals may be assessed *using the same set of questions*
- measuring general ability nonverbally is, therefore, more appropriate, or fair, for culturally and/or linguistically diverse populations

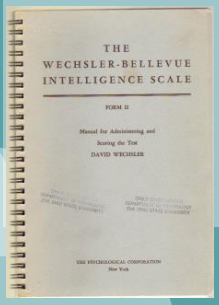
General ability (Naglieri, Brulles & Lansdowne, 2009)

- **General ability is what allows us to solve many different 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.**



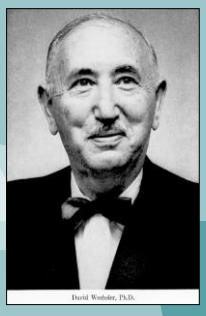
Wechsler

- General ability has been measured since 1939 with the *Wechsler Scales*
- These tests included many subtests that differed in their content and requirements
- Individual subtest scores are combined into a Full Scale score to reflect general ability
- Subtests were organized into scales (e.g. Verbal) based on the content of the subtests



Wechsler's Definition

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



What a Nonverbal Test Measures

Helping All Gifted Children Learn: A Teacher's Guide to Using the NNAT2

It is important to understand that even though Wechsler's intelligence (IQ) tests were organized into verbal and nonverbal sections, he did not mean that verbal and nonverbal are different types of ability. Wechsler (1958) explicitly stated that the organization of subtests into verbal and performance scales did *not* indicate that two distinctive types of intelligence were being measured. In fact, he

What a Nonverbal Test Measures

wrote: "the subtests are *different measures of intelligence*, not *measures of different kinds of intelligence*" (p. 64). Similarly, Naglieri (2003) further clarified that "the term nonverbal refers to the content of the test, not a type of ability" (p. 2). Thus, tests may differ in their content or specific demands, but still measure the concept of general intelligence.

General Intelligence

- The content of the activities may vary but they all require general ability
- Tests of general ability may be divided on the basis of the content of the questions…but that does not mean that different abilities are being measured

General Intelligence

- The meaning of general intelligence
  - "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)".
  - *Intelligence Testing: Methods and Results* by Roudolf Pintner (1923)

Nonverbal Assessment

- Bracken and Naglieri (2003) state
  - "general intelligence tests with verbal content and nonverbal content measure essentially the same construct as general ability tests that are entirely nonverbal" (p. 247)
  - Both types measure general ability
    - one measures general ability with varying content (verbal, quantitative, and nonverbal) and the other uses nonverbal tests

NNAT Second Edition (2008)

Details about the test…

NNAT2 Naglieri Nonverbal Ability Test® Second Edition

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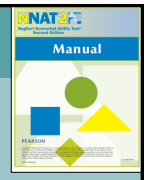
What does NNAT2 Measure



Content

The NNAT2 is a nonverbal measure of general ability that is predictive of academic success (see Naglieri, 2008). All items share the same essential requirement—that the student examine the relationships among the parts of the design, called a matrix, and determine which response is the correct one based on the information inherent in the item. The item raw scores are summed to get the total raw score which is used to obtain the scaled score,

Naglieri Ability Index (NAI) score, stanine, and percentile rank. The NAI score represents the student's overall level of general ability when measured using nonverbal stimuli.

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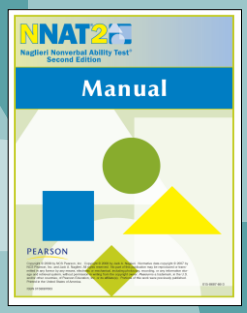
Components

- Manual
  - Introduction to the NNAT2, general testing guidelines, details about the development of the NNAT2, evidence of reliability, evidence of validity with special groups, evidence of validity with other measures, and the normative tables



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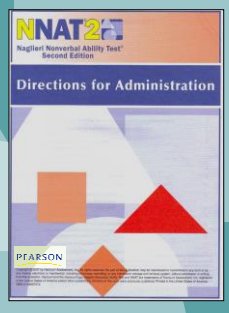
Components

- The *Directions for Administration* - the spoken portion of the directions in English and in Spanish.



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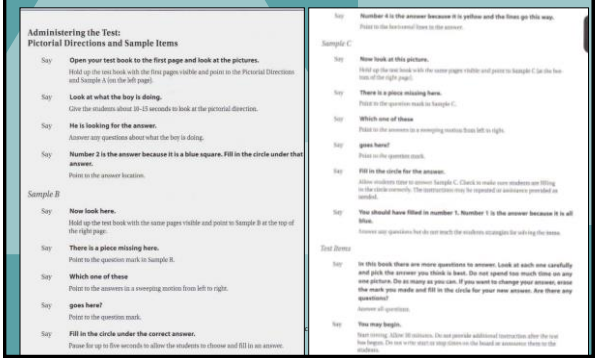
Instructions



Administering the Test:
Pictorial Directions and Sample Items

Say **Open your test book to the first page and look at the pictures.**
Hold up the test book with the first pages visible and point to the Pictorial Directions and Sample A (on the left page).

Say **Look at what the boy is doing.**
Give the students about 10–15 seconds to look at the pictorial direction.

Say **He is looking for the answer.**
Answer any questions about what the boy is doing.

Say **Number 2 is the answer because it is a blue square. Fill in the circle under that answer.**
Point to the answer location.

Sample B

Say **Now look here.**
Hold up the test book with the same pages visible and point to Sample B at the top of the right page.

Say **There is a piece missing here.**
Point to the question mark in Sample B.

Say **Which one of these**
Point to the answers in a sweeping motion from left to right.

Say **goes here?**
Point to the question mark.

Say **Fill in the circle under the correct answer.**
Pause for up to five seconds to allow the students to choose and fill in an answer.

Say **Number 4 is the answer because it is yellow and the lines go this way.**
Point to the horizontal lines in the answer.

Sample C

Say **Now look at this picture.**
Hold up the test book with the same pages visible and point to Sample C (at the bottom of the right page).

Say **There is a piece missing here.**
Point to the question mark in Sample C.

Say **Which one of these**
Point to the answers in a sweeping motion from left to right.

Say **goes here?**
Point to the question mark.

Say **Fill in the circle for the answer.**
Allow students time to answer Sample C. Check to make sure students are filling in the circle correctly. The instructions may be repeated or assistance provided as needed.

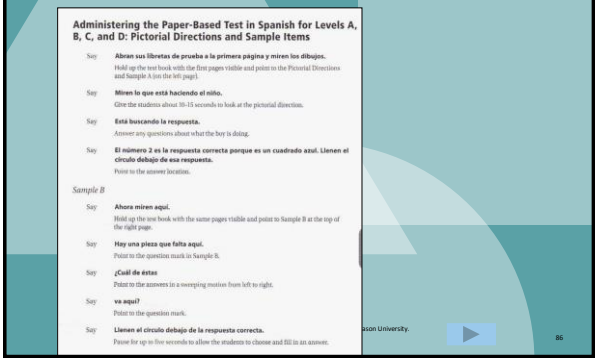
Say **You should have filled in number 1. Number 1 is the answer because it is all blue.**
Answer any questions but do not teach the students strategies for solving the items.

Test Items

Say **In this book there are more questions to answer. Look at each one carefully and pick the answer you think is best. Do not spend too much time on any one picture. Do as many as you can. If you want to change your answer, erase the mark you made and fill in the circle for your new answer. Are there any questions?**
Answer all questions.

Say **You may begin.**
Start timing. Allow 30 minutes. Do not provide additional instruction after the test has begun. Do not write start or stop times on the board or announce them to the students.

Spanish Directions



Administering the Paper-Based Test in Spanish for Levels A, B, C, and D: Pictorial Directions and Sample Items

Say **Abran sus libretas de prueba a la primera página y miren los dibujos.**
Hold up the test book with the first pages visible and point to the Pictorial Directions and Sample A (on the left page).

Say **Miren lo que está haciendo el niño.**
Give the students about 10–15 seconds to look at the pictorial direction.

Say **Está buscando la respuesta.**
Answer any questions about what the boy is doing.

Say **El número 2 es la respuesta correcta porque es un cuadrado azul. Llenen el círculo debajo de esa respuesta.**
Point to the answer location.

Sample B

Say **Ahora miren aquí.**
Hold up the test book with the same pages visible and point to Sample B at the top of the right page.

Say **Hay una pieza que falta aquí.**
Point to the question mark in Sample B.

Say **¿Cuál de éstas**
Point to the answers in a sweeping motion from left to right.

Say **va aquí?**
Point to the question mark.

Say **Llenen el círculo debajo de la respuesta correcta.**
Pause for up to five seconds to allow the students to choose and fill in an answer.

ason University.

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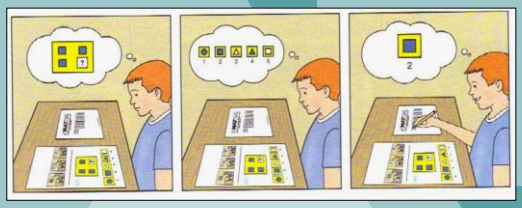
Pictorial Directions



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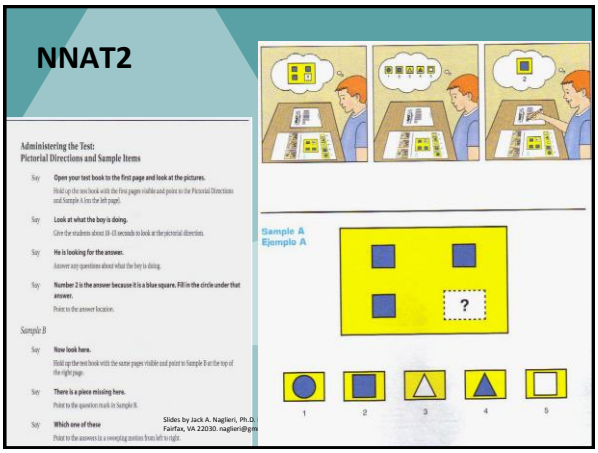
NNAT2



Administering the Test:
Pictorial Directions and Sample Items

Say **Open your test book to the first page and look at the pictures.**
Hold up the test book with the first pages visible and point to the Pictorial Directions and Sample A (on the left page).

Say **Look at what the boy is doing.**
Give the students about 10–15 seconds to look at the pictorial direction.

Say **He is looking for the answer.**
Answer any questions about what the boy is doing.

Say **Number 2 is the answer because it is a blue square. Fill in the circle under that answer.**
Point to the answer location.

Sample B

Say **Now look here.**
Hold up the test book with the same pages visible and point to Sample B at the top of the right page.

Say **There is a piece missing here.**
Point to the question mark in Sample B.

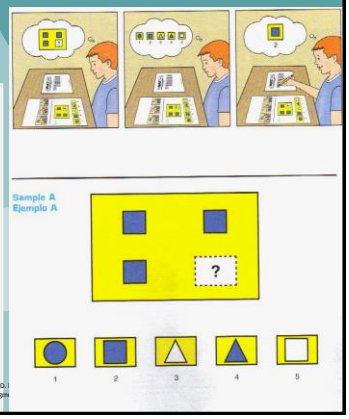
Say **Which one of these**
Point to the answers in a sweeping motion from left to right.

Sample A
Ejemplo A

1 2 3 4 5

Slides by Jack A. Naglieri, Ph.D.
Fairfax, VA 22030. naglieri@gm

NNAT2



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Point to the answers in a sweeping motion from left to right.

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Components

- 7 books of actual items
  - levels A through D on which the student responds
  - levels C through G are reusable stimulus books with scannable record forms
    - Levels C and D can be administered using either type of booklet

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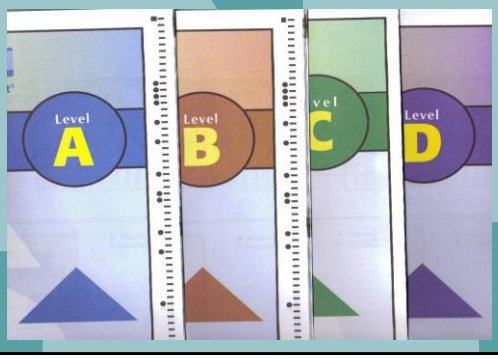
Multi-Level Booklets



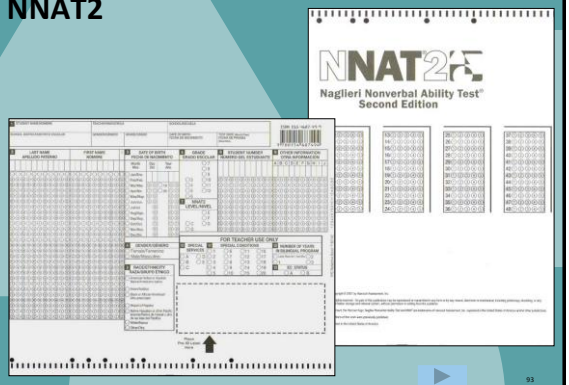
Details

- Give the 7 levels by grade as in the NNAT
- The NNAT2 is given in 30 minutes
- NNAT2 has 48 items per level
- Maximum score is 160

Table 1. NNAT2 Level and Grade

Level	Grade
A	K
B	1
C	2
D	3, 4
E	5, 6
F	7, 8, 9
G	10, 11, 12

NNAT2



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Components

- *Hand Scoring Guide*
- *Teacher's Guide to Identification and Instruction of Gifted Children Using the Naglieri Nonverbal Ability Test* (Naglieri, Brulles, & Lansdowne, 2008).
  - Provides information about the NNAT2: what it measures, how it helps identify gifted minorities, and how these children should be taught.
- NNAT2 online of all levels of the NNAT2.

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Details

- The NNAT2 colors: blue and yellow with black borders
- The NNAT2 includes pictorial directions.
- The NNAT2 requires even fewer in the directions because of the pictorial directions.
- The NNAT2 has simultaneous standardization of paper and online versions

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Presentation Outline

- Nonverbal Tests – the big picture
- Characteristics of the US
- Comparison of Nonverbal tests
- What all Nonverbal tests measure
- NNAT Group
- NNAT Individual
- NNAT2 Group
- NNAT 2 Online
- Validity of NNAT
  - Race Ethnic differences
  - Finding gifted minority children
  - Language differences

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NNAT2
Naglieri Nonverbal Ability Test®
Second Edition

Online

First, the proctor/teacher logs in with the info below

www.teacher.nnat2.com/

www.nnat2.com

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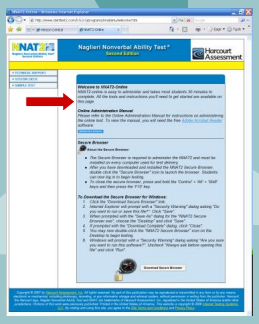
Online



Slides by Jack A. Naglieri, Ph.D. Professor of Psychology, George Mason University. Fairfax, VA 22030. naglieri@gmu.edu

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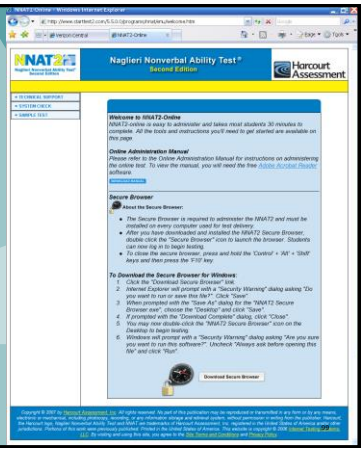
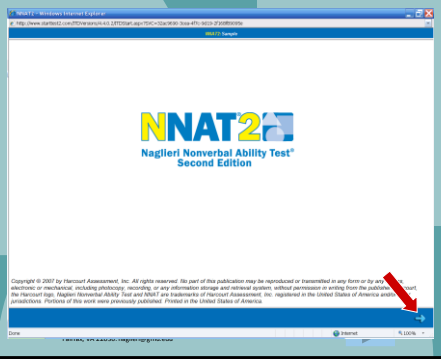
Security is Ensured by special browser





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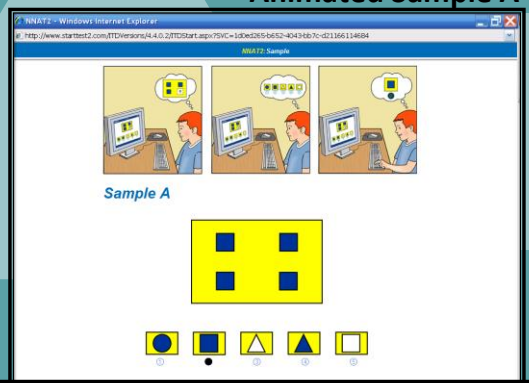
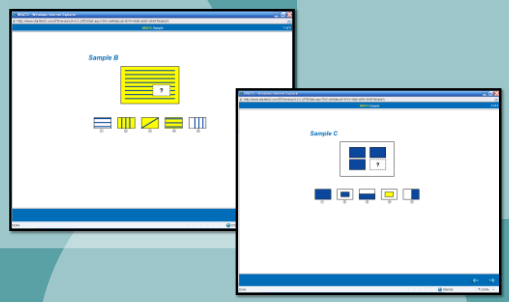
Animated Sample A



Animated B & C



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Samples

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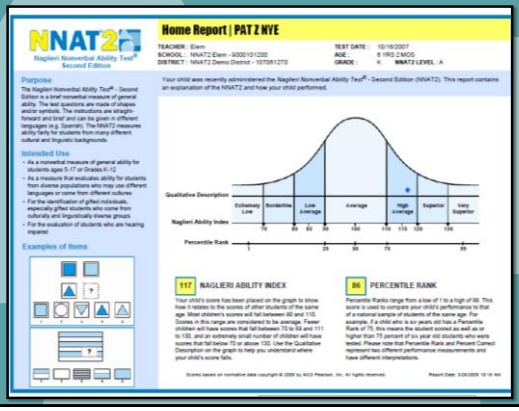
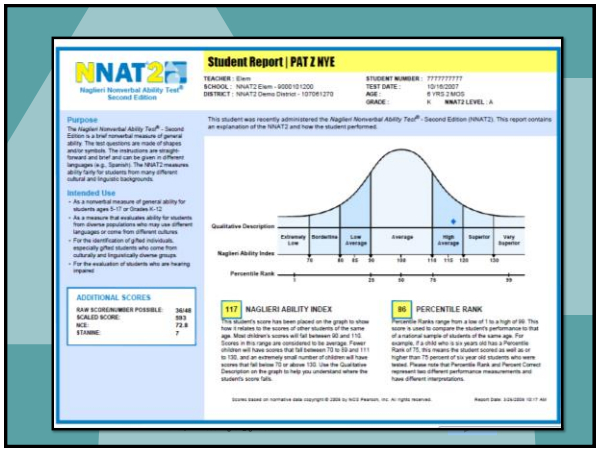
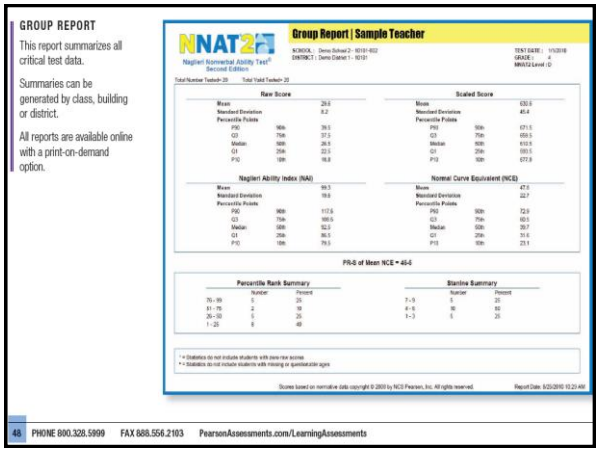
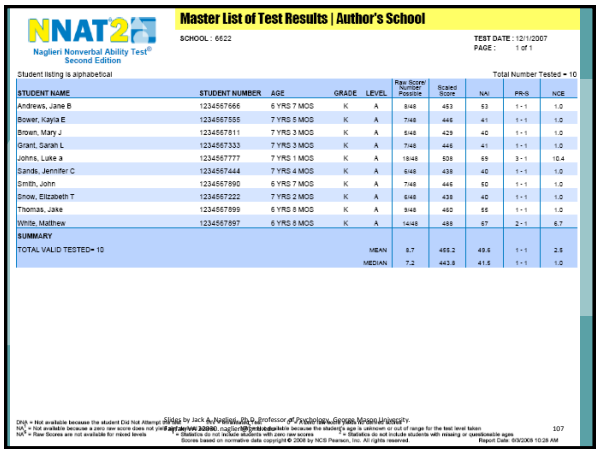
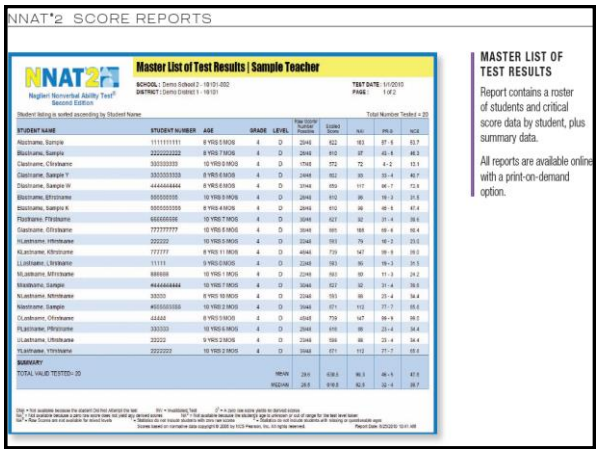


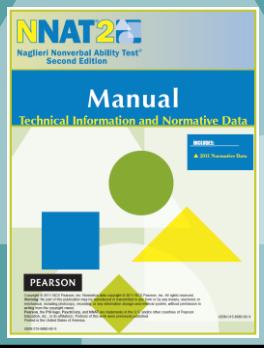

NNAT2
Naglieri Nonverbal Ability Test®
Second Edition
Student Report | PAT Z NYE
TEACHER : Elem
SCHOOL : NNAT2 Elem - 9000101200
DISTRICT : NNAT2 Demo District - 10706127
STUDENT NUMBER : 7777777777
TEST DATE : 10/16/2007
AGE : 6 YRS 2 MOS
GRADE : K
NNAT2 LEVEL : A
Purpose
Intended Use
ADDITIONAL SCORES
RAW SCORE/NUMBER POSSIBLE: 36/48
SCALED SCORE: 593
NCE: 72.8
STANINE: 7
117 NAGLIERI ABILITY INDEX
86 PERCENTILE RANK
Qualitative Description
Extremely Low
Borderline
Low Average
Average
High Average
Superior
Very Superior
Naglieri Ability Index
Percentile Rank


GROUP REPORT
This report summarizes all critical test data.
Summaries can be generated by class, building or district.
All reports are available online with a print-on-demand option.
NNAT2
Naglieri Nonverbal Ability Test®
Second Edition
Group Report | Sample Teacher
Raw Score
Scaled Score
Naglieri Ability Index (NAI)
Normal Curve Equivalent (NCE)
PR-S of Mean NCE = 46-6
Percentile Rank Summary
Stanine Summary
48 PHONE 800.328.5999 FAX 888.556.2103 PearsonAssessments.com/LearningAssessments


NNAT2
Naglieri Nonverbal Ability Test®
Second Edition
Master List of Test Results | Author's School
SCHOOL : 6622
TEST DATE : 12/1/2007
PAGE : 1 of 1
Student listing is alphabetical
Total Number Tested = 10
STUDENT NAME
STUDENT NUMBER
AGE
GRADE
LEVEL
Raw Score/ Number Possible
Scaled Score
NAI
PR-S
NCE
Andrews, Jane B 1234567666 6 YRS 7 MOS K A 8/48 463 53 1 - 1 1.0
Bower, Kayla E 1234567555 7 YRS 5 MOS K A 7/48 446 41 1 - 1 1.0
Brown, Mary J 1234567811 7 YRS 3 MOS K A 6/48 429 40 1 - 1 1.0
Grant, Sarah L 1234567333 7 YRS 3 MOS K A 7/48 446 41 1 - 1 1.0
Johns, Luke a 1234567777 7 YRS 1 MOS K A 18/48 508 69 3 - 1 10.4
Sands, Jennifer C 1234567444 7 YRS 4 MOS K A 6/48 438 40 1 - 1 1.0
Smith, John 1234567890 6 YRS 7 MOS K A 7/48 446 50 1 - 1 1.0
Snow, Elizabeth T 1234567222 7 YRS 2 MOS K A 6/48 438 40 1 - 1 1.0
Thomas, Jake 1234567899 6 YRS 8 MOS K A 9/48 460 56 1 - 1 1.0
White, Matthew 1234567897 6 YRS 8 MOS K A 14/48 488 67 2 - 1 6.7
SUMMARY
TOTAL VALID TESTED= 10
MEAN 8.7 466.2 49.6 1 - 1 2.8
MEDIAN 7.2 443.8 41.8 1 - 1 1.0


NNAT®2 SCORE REPORTS
NNAT2
Naglieri Nonverbal Ability Test®
Second Edition
Master List of Test Results | Sample Teacher
MASTER LIST OF TEST RESULTS
Report contains a roster of students and critical score data by student, plus summary data.
All reports are available online with a print-on-demand option.

NNAT2 Normative Update



New norms for greater accuracy

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NNAT2 Normative Update

- Norms gradually become outdated due to changes in the US population
- And what is know as the Flynn Effect
- To ensure accurate norms we used data collected from customer use
- 99,004 cases were used to create the new norms
- Distribution of cases (students) matches that of the US population
- Data for PK, K and HS was recruited to fill gaps
- NO CHANGES to the items were made

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NNAT2 Normative Update

- The sample closely matched the US population

Table 13. Demographic Characteristics of the NNAT2 2011 Normative Sample

		Percentage of total U.S. School enrollment *	Percentage of Students in Standardization Sample
Region	North East	16.5	12.4
	Mid West	21.7	22.1
	South	38.5	43.7
	West	23.5	21.8
SES	Low	12.4	10.9
	Low-Middle	17.2	16.2
	Middle	22.1	22.4
	High-Middle	26.2	28.0
	High	22.1	22.5
Urbanicity	Urban	26.6	30.7
	Suburban	39.6	38.5
	Rural	33.8	30.8
Ethnicity	White	53.7	52.3
	African American	16.6	15.5
	Hispanic	22.8	23.5
	Asian	4.9	7.6
	Other	1.9	1.1
School Type	Public	89.3	90.1
	Private/Catholic	10.7	9.9
Sex	Female	48.7	48.5
	Male	51.3	51.5

* National Center for Educational Statistics, United States Department of Education, 2009 Census Data

NNAT2 Normative Update

- The NAI (Naglieri Nonverbal Index) was recalibrated
- The NAI Scale remained the same (40 – 160
- The change to the NAI was 1.4 points (newer slightly lower)
- Added Pre-K scoring system which uses Level A (Online Only, No Scan)
- New Manual and new Hand Scoring Guides

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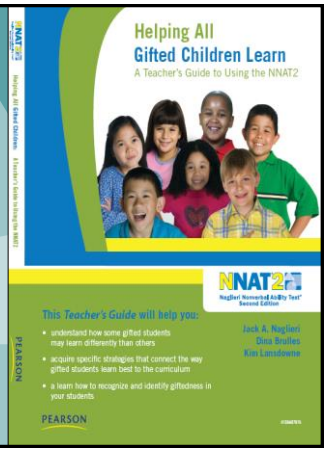
NNAT2 Normative Update

- Change was effective August 1, 2012
- New normative data is used in both the ITS and ReadyResults.net platforms
- 2007 Norms were retired Midnight, July 31, 2012
- All online, centrally scanned or virtual answer document tests use the new 2011 norms
- Hand Scoring customers should use the 2011 norms

Slides by Jack A. Naglieri, Ph.D. 113

Teaching Gifted Students Identified with NNAT2



Helping All Gifted Children Learn

Chapter 4

Teaching Strategies Useful for Gifted Students

Anna is a collector of antique keys. She owns hundreds of keys, which she keeps in tiny cupboards lining the walls of her bedroom. Each key has a history. Anna has researched each key and documents intricate details about almost every key in her vast collection. She knows where each key was made, what it was used for, the key's history in some cases, and even addresses for some of the places the keys were used. Anna's queries led her to research how keys have changed over the years and the ways keys were made in various countries during different time periods. While researching her keys, Anna looked at the types of doors the keys opened. Of course, she could not look at the doors without learning about some of the historical buildings that contained the doors. Anna archived thousands of pictures, which she has found in old

Helping All Gifted Children Learn

Using Multiple Learning Modalities

Linguistic	Visual-Spatial	Logic Smart	Musical	Interpersonal	Intrapersonal	Body Smart	Naturalist
Word Smart	Picture Smart	Number Smart	Music Smart	People Smart	Self Smart	Body Smart	Nature Smart
							
Skills Involve:	**Skills Involve:**	**Skills Involve:**	**Skills Involve:**	**Skills Involve:**	**Skills Involve:**	**Skills Involve:**	**Skills Involve:**
Listening	Puzzle Building	Problem Solving	Singing	Discussing	Journaling	Dancing	Relating
Speaking	Reading	Collecting	Whistling	Responding	Intuiting	Sculpting	Discovering
Writing	Understanding Charts and Graphs	Performing Complex Calculations	Playing Musical Instruments	Empathizing	Reflecting and Analyzing	Physical Coordination	Uncovering
Storytelling	Good Sense of Direction	Analyzing	Composing	Counseling	Understanding Relationships	Preparing	Observing

Helping All Gifted Children Learn

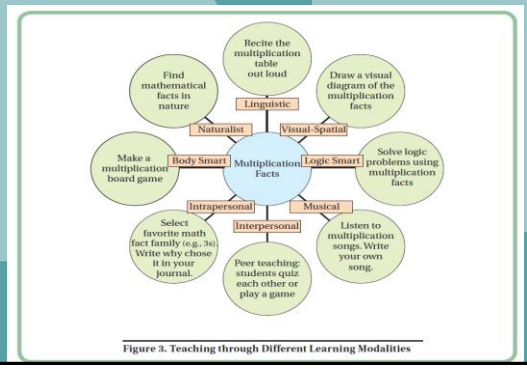


Figure 3. Teaching through Different Learning Modalities

Helping All Gifted Children Learn

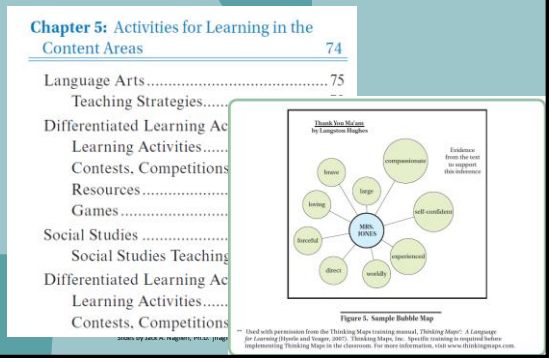


Figure 5. Sample Bubble Map

** Used with permission from the Thinking Maps training manual, *Thinking Maps®: A Language for Learning* (Hyerle and Yeager, 2007). Thinking Maps, Inc. Specific training is required before implementing Thinking Maps in the classroom. For more information, visit www.thinkingmaps.com.

High Ability Relates to…

- Making relationships between ideas and things
- Acquiring and retaining information quickly
- Learning advanced content more quickly than age peers
- Process information in "whole to part" way
- Function opposite of sequential learner
- May "see" the solution with out using the same steps as others
- Interweave concepts and ideas
- Sometimes think faster than they can write

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Effective gifted programs:

- ✓ Flexible grouping
- ✓ Differentiation
- ✓ Continuous progress
- ✓ Intellectual peer interaction
- ✓ Continuity
- ✓ Teachers with specialized education

PREVALENT GIFTED PROGRAM MODELS

Cluster Grouping ~ K-8

Honors Math and Language Arts ~ Gr. 3+

Enrichment classes ~ K-8

Self-contained Programs ~ Gr. 1- 8

Twice-exceptional Programs ~ Gr. 1- 8

Online Honors (HS)

International Baccalaureate (K-12)

Gifted Program Models

[There is] no single best way to develop programs for these students, who are so varied in their interests, talents, abilities, and learning styles. Thus, programs should be flexible and dynamic, multi-leveled, and designed to meet the individual needs of each child who receives services. The goal is to expand students' abilities, not just to establish a program".

Aiming for Excellence: Gifted Program Standards, Landrum and Shaklee (2001)

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Application of NNAT in the schools

Some illustrations

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Fairfax County Schools

2001 vs 2002 gifted identification program

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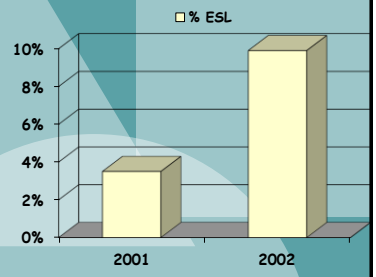
2001 vs 2002 Primary Language

- 183% increase in children whose primary language is not English (Spanish, Chinese, Korean, and Vietnamese)



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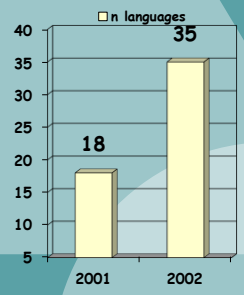
Farifax County N of languages



- Two year comparison
- Total sample approximately 10,000
- Top 10% of children screened
- Number of languages spoken by children whose primary language was not English

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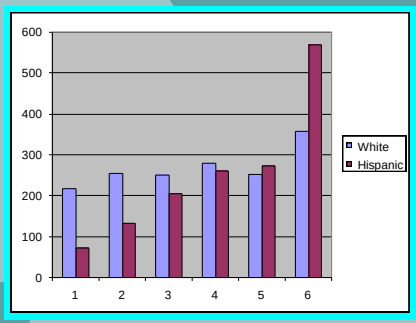
Case Study

Glendale, AZ

2000 - 2006

Gifted Identification

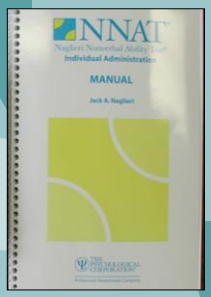
Glendale, AZ



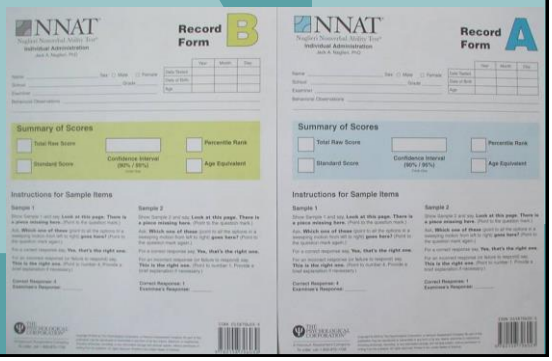
Numbers of gifted population depicted by ethnic representation of White and Hispanic gifted student populations between 2000-2006

N NAT - Individual

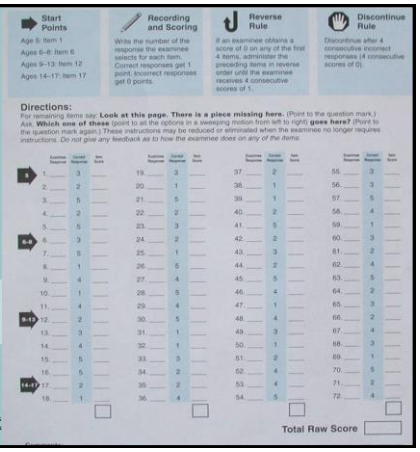
- Individual Form
  - Two forms
  - Each form for ages 5 – 17 years
  - Given individually
  - Use as part of an evaluation
  - For close examination of test behaviors



Record Forms for A and B



Record Form



Directions in Spanish

Spanish

Ejemplo 1 (Formas A y B)

Muestre el Ejemplo 1 y diga, **Mira esta página. Hay una pieza que falta aquí.** (Señale el signo de interrogación.)

Pregunte, **¿Cuál de estos** (señale todas las opciones moviendo su dedo de izquierda a derecha) **va aquí?** (Señale el signo de interrogación otra vez.)

Para una respuesta *correcta*, diga, **Sí, esa es la correcta.**

Para una respuesta *incorrecta* (o si no hay respuesta), diga, **Ésta es la correcta.** (Señale la respuesta número 4.) (Explique brevemente si es necesario.)

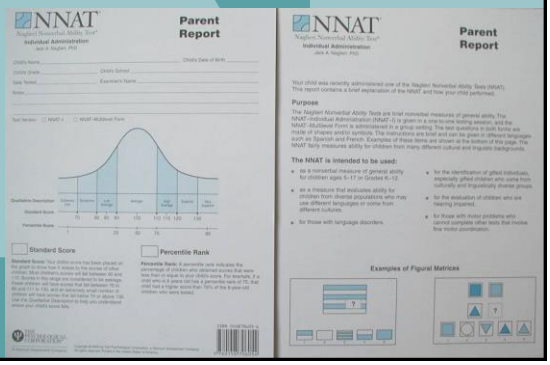
Ejemplo 2 (Formas A y B)

Muestre el Ejemplo 2 y diga, **Mira esta página. Hay una pieza que falta aquí.** (Señale el signo de interrogación.)

Pregunte, **¿Cuál de estos** (señale todas las opciones moviendo su dedo de izquierda a derecha) **va aquí?** (Señale el signo de interrogación otra vez.)

Para una respuesta *correcta*, diga, **Sí, esa es la correcta.**

Parent Report Form

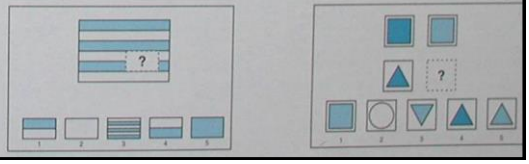


Parent Report Form

The NNAT is intended to be used:

- as a nonverbal measure of general ability for children ages 5–17 or Grades K–12.
- as a measure that evaluates ability for children from diverse populations who may use different languages or come from different cultures.
- for those with language disorders.
- for the identification of gifted individuals, especially gifted children who come from culturally and linguistically diverse groups.
- for the evaluation of children who are hearing impaired.
- for those with motor problems who cannot complete other tests that involve fine motor coordination.

Examples of Figural Matrices



Nonverbal Assessment

Conclusions and Implications

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Conclusions on Nonverbal Tests

- What is the role of nonverbal measures of general ability?
  - They provide a tool that allows children from diverse backgrounds the opportunity to demonstrate their ability apart from their knowledge of English and academic skills
  - They provide a window to the child's potential for success

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Conclusions on Nonverbal Tests

- Are nonverbal tests more appropriate than verbal or quantitative tests?
  - Yes – they put everyone on a level playing field
    - That does not mean that verbal and quantitative tests should not be used; but rather that these test scores should not deny access to gifted children who earn high nonverbal scores
- Do nonverbal tests reduce differences between different ethnic groups?
  - Yes– much better than a verbal or quantitative test

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Conclusions on NNAT

- Can the NNAT be used as the primary tool for screening students for gifted programs?
  - YES – as one component of a process to find gifted children
  - Any test used for screening should be evaluated on the basis of their individual reliability, validity, and equity in identification of minorities
- Tests that are achievement based can be used to find academically talented children
- Children with high ability on a nonverbal test (gifted) and low on verbal tests should be provided gifted programming

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Summary of the N NAT

- Advantages of NNAT
  - Strong relationships to achievement
  - Small Race / Ethnic differences
  - Similar identification rates for gifted children
  - Similar scores for children with limited English language skills
- **NNAT is an effective way to measure general ability for a wide variety of children**

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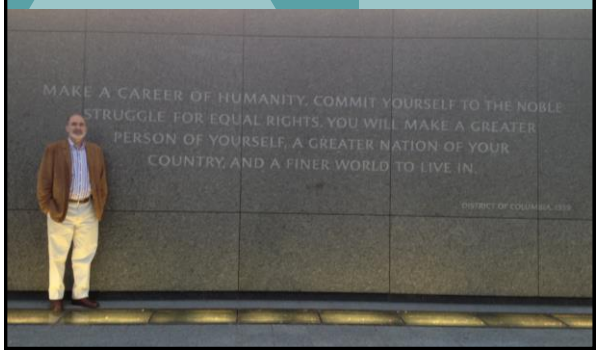
Why the emphasis on good testing?



Thank you !

jnaglieri@gmail.com