

## SLD ELIGIBILITY USING A PATTERN OF STRENGTHS AND WEAKNESSES: A SIMPLE SOLUTION

- In this session we will provide a straightforward way school psychologists can use the so called 'third method' for SLD eligibility determination to both classify and remediate specific learning disabilities. This will include a brief look at the research on the effectiveness of traditional IQ and second-generation tests for SLD identification and socially just assessment. Emphasis will be placed on a step-by-step analysis illustrated using PASS theory to measure 'basic psychological processes' in a manner consistent with California's current definition of SLD and Dyslexia. Specific cases will be presented to describe how defensible SLD eligibility decisions can be made, and most importantly, how targeted interventions can be generated for instructional planning purposes.
- 
- The primary learning objectives will be:
  - 1. Explore the basic neurocognitive processes in the brain that are the foundation of learning and the cause of specific learning disorders in children.
  - 2. Introduce the discrepancy-consistency method as an evidence-based means to both identify and remediate language-based learning disorders in children.
  - 3. Discuss specific psychological and neuropsychological tests that provide the most comprehensive and efficient means for assessing children with learning disorders and Dyslexia.

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# SLD Eligibility Using a Pattern of Strengths and Weaknesses: A Simple Equitable Solution

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FOR MORE INFORMATION PLEASE GO TO MY WEB PAGES

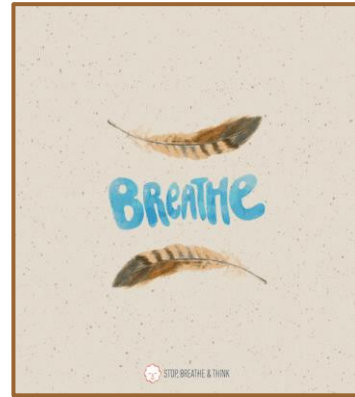
The image shows two side-by-side screenshots of websites. The left screenshot is the Naglieri General Ability Tests website, featuring a header with the logo and navigation links (HOME, AUTHORS, ABOUT, WEBINARS, RECENT HANDOUTS, FAQs, MORE). Below the header is a large banner with the text "EQUITABLE ASSESSMENT OF GIFTED STUDENTS USING THE Naglieri General Ability Tests Now Available" and an image of colored pencils. Below the banner are two columns of text: "Inequity in Gifted Testing" and "Achieving Equity". The right screenshot is the JackNaglieri.com homepage, with a header "JACKNAGLIERI.COM TOOLS FOR PSYCHOLOGICAL AND EDUCATIONAL ASSESSMENT". It includes a "WELCOME TO JACKNAGLIERI.COM" section with a photo of Jack A. Naglieri and a bio. Below this are several sections with images and text: "NAGLIERI GENERAL ABILITY TESTS: VERBAL, NONVERBAL AND QUANTITATIVE", "HANDOUTS", "WEBINARS", "EQUITY", "EXECUTIVE FUNCTION", and "HELPING CHILDREN LEARN".

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The infographic features the text "How Are You Feeling Today?" in large, bold, red font on the left side. On the right side, there is a 2x3 grid of black and white photographs of a baby's face, each numbered in the top right corner. The faces show various expressions: 1. Crying with a furrowed brow; 2. Smiling broadly; 3. Sleeping peacefully; 4. Looking thoughtful or sad; 5. Screaming with mouth wide open; 6. Looking happy with tongue sticking out.

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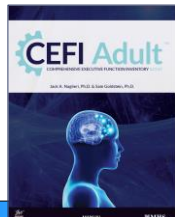
# Let's Get Ready to Learn



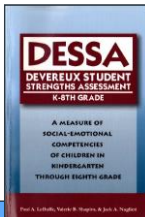
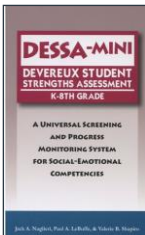
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## Disclosures

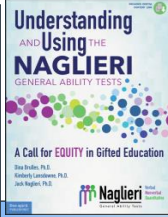
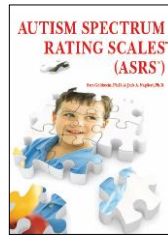
### Executive Function



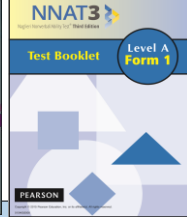
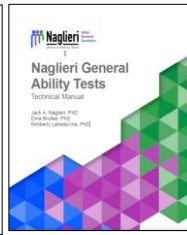
### Social Emotional



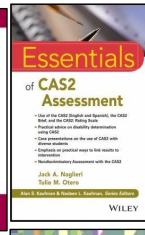
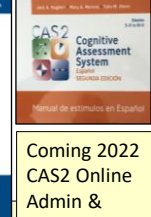
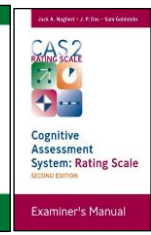
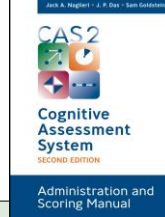
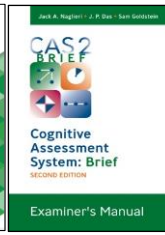
### Autism



### Gifted Identification



### PASS Neurocognitive Theory: Assessment & Intervention Handouts



Coming 2022  
CAS2 Online  
Admin &  
Scoring

## Core Group Discussion → Deeper Learning

- **C**oach – Help the group decide what to do
- **O**rganizer – Guide the discussion
- **R**ecorder – Keep notes and speak for the group
- **E**nergizer – Focus the group !



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## The BIG picture

- The comprehensive assessments we provide can alter the course of a student's life; making this one of the most important tasks we have.
- We want Intellectual assessment that
  - Is consistent with IDEA and state regulations regarding SLD determination
  - Helps us understand WHY a student fails
  - Informs teachers and the students about academic strengths & weaknesses and interventions
  - Is fair for students from diverse populations
- These goals can be achieved if we use second-generation tests that measure the way students THINK to LEARN
  - The definition of THINKING should be based on BRAIN function
  - PASS theory is a way of defining THINKING and the Cognitive Assessment System-2<sup>nd</sup> Edition measures a student's ABILITY to think



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# CASE by Tulio Otero: ALEJANDRO (C.A. 7-0 GRADE 1)

## REASON FOR REFERRAL

- Does he have ID?
- Academic:
  - Could not identify letters/sounds
  - October. Could only count to 39
  - All ACCESS scores of 1
- Behavior:
  - Difficulty following directions
  - Attention concerns
  - Refusal/defiance

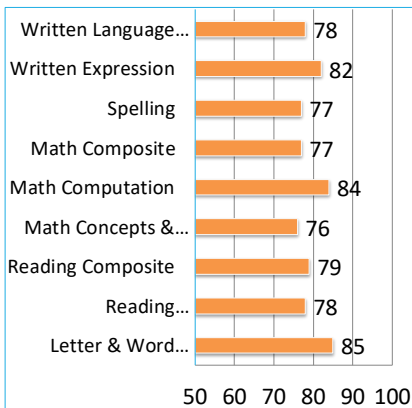


Note: this is not a picture of Alejandro

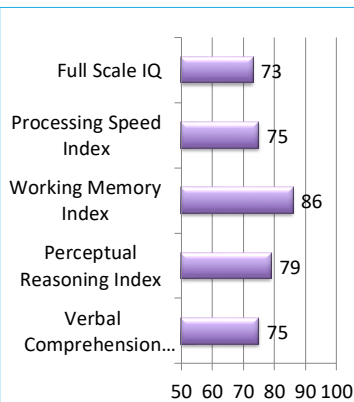
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## WISC-IV ASSESSMENT

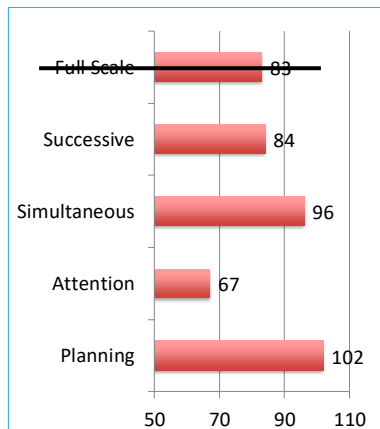
### KTEA2



### WISC-IV (Spanish)



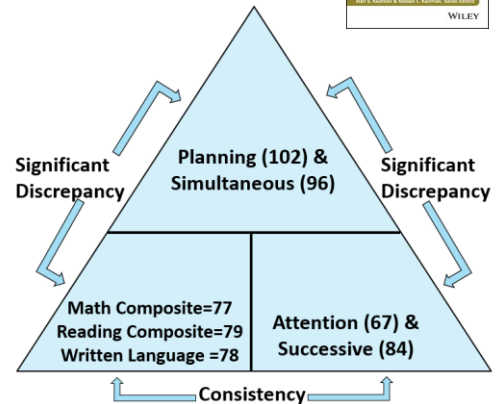
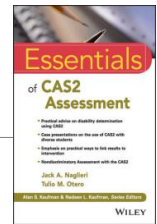
### CAS2



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## Alejandro and PASS (by Dr. Otero)

- ▶ Alejandro is not a slow learner.
- ▶ He has strengths:
  - ▶ Simultaneous = 96 and Planning = 102
- ▶ There is evidence of a disorder in one or more of the basic psychological processes ( i.e. Attention = 67 and Successive = 84) which explains WHY THE STUDENT FAILS
- ▶ When the student and teachers understands PASS strengths and weaknesses self-image, persistence and motivation change



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## Intervention Protocol (Naglieri & Kryza, 2019)

1. Help child understand their PASS strengths and challenges (be intentional & transparent)
2. Encourage Motivation & Persistence (student's mindset)
3. Encourage strategy use (build skill sets)
4. Encourage independence and self efficacy (metacognition, self assessment & self correction)

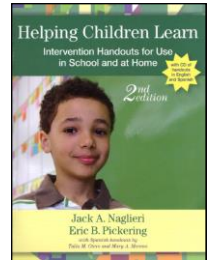
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# Be Intentional and Transparent

- Give Alejandro the PASS handouts
  - *“The test showed that your brain is strong in seeing the BIG PICTURE (Simultaneous Processing) and recognizing sequences is weaker. (Successive Processing) Does that make sense to you?”*
- Explain to him the PASS areas that are challenges for him
  - The part of your brain that makes learning challenging for you is the part that allows you to keep information in order (provide examples) and controlling your attention.
  - We’re going to work on using your strengths and helping you develop your ability to keep things in sequence and to use your planning.



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## Ideas to Consider



### My Professional Journey

- An Awakening About Traditional Intelligence Tests

### A Theory Based on Brain Function

- Thinking vs Knowing and Social Justice

### From PASS to CAS2

- A Different View of People

### Research Update

- PASS and Equity – Measure Thinking not Knowing
- To *g* or not to *g*

### Administration and Interpretation Issues

- Test order, subtest interpretation, etc.

### Reasons To Change

- Validity of PASS Theory

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## Traditional IQ and Achievement Tests

- Working as a school psychologist in 1975 I noticed that items on the WISC we were VERY similar to parts of the achievement tests
  - In fact the *Peabody Individual Achievement Test* (1970) had a General Information and Arithmetic subtests JUST LIKE THE WISC!
  - THAT DID NOT MAKE SENSE
  - In 1977 → UGA for Ph.D. With Alan Kaufman who said VIQ=achievement
  - THAT made sense!



1975 Charles Champagne Elementary, Bethpage, NY

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## How and Why...

- First job as assistant professor at Northern Arizona University - 1979
  - Lecture on Navajo Native Americans
  - Testing students in Supai, AZ



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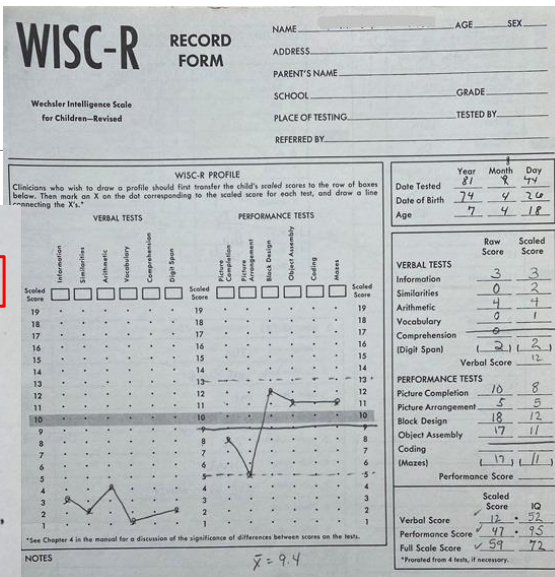


# How and Why...

## Test Results and Interpretations:

On the WISC-R, Amanda earned a Performance IQ of 95±7 which falls in the average range of intelligence and at the 37th percentile rank in comparison to the children her age in the standardization sample. In contrast to this score of average non-verbal intelligence was her Verbal IQ of 52±7. This score is quite low and indicates that her level of facility with the English language falls at about the 1st percentile rank. This score can NOT be considered an estimate of verbal intelligence because Amanda speaks mostly Supai and little English. Due to the large difference between these scores, no Full Scale IQ was computed.

Within the WISC-R a clear pattern emerged: Amanda performed well on tasks that required little or no English language comprehension or expression, and poorly on all tasks which did require these linguistic skills. In fact, even if a task was visual and non-verbal, but required English language comprehension of instructions, she performed more poorly.



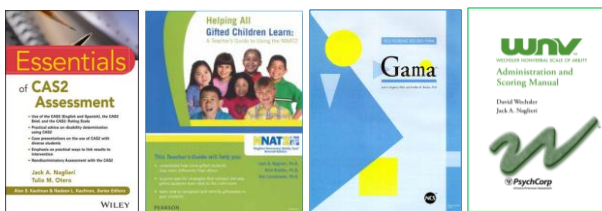
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# How and Why...

- First Research Article
  - Naglieri, J. A. (1982). Does the WISC-R measure verbal intelligence for non-English speaking children? *Psychology in the Schools, 19*, 478-479.
- Tests and books
  - Matrix Analogies Tests Individual and Group administrations (1985)
  - NNAT - 1997
  - CAS - 1997
  - Essentials of CAS Assessment 1999
  - Helping All Gifted Students Learn (Naglieri, Brulles & Lansdowne, 2009)



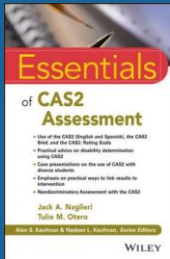
1985 MAT Short and Expanded Forms | Naglieri Nonverbal Ability Test in 1997 | NNAT -2 published in 2008 | NNAT -3 published in 2016



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## Naglieri & Otero (2017) on Fairness

We can and  
must do  
better



Traditional IQ tests are insufficient for equitable assessment for several reasons:

1. These tests were not built on a *theory of intelligence* which is critical for test development and interpretation
2. Subtests that demand knowledge confound the measurement of intelligence
3. The knowledge requirement is inconsistent with equitable assessment
4. The only score deemed interpretable is the Full Scale

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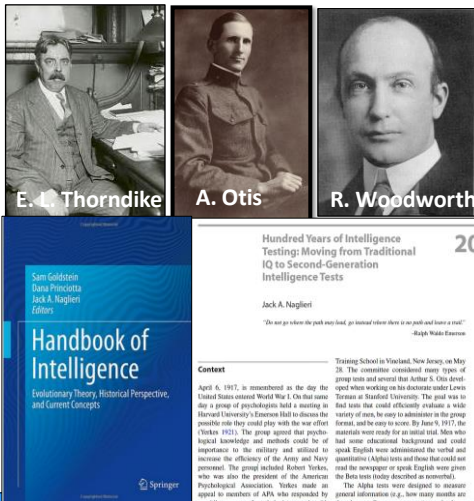
## Why do we measure intelligence the way we do?

The History of IQ tests



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



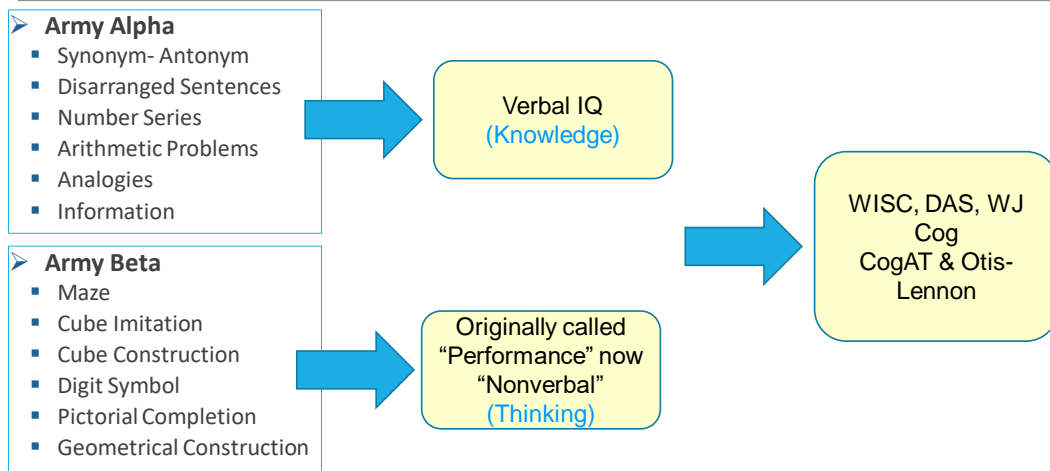
- A group of psychologists met at Harvard in April of 1917 to construct an ability test to help the US military evaluate recruits (WWI)
- By July 1917 their research showed that the Army Alpha (Verbal & Quantitative) and Beta (Nonverbal) tests could “aid in segregating and eliminating the mentally incompetent, classify men according to their mental ability; and assist in selecting competent men for responsible positions” (p. 19, Yerkes, 1921).
- This was the foundation of the Wechsler Scales – Verbal, Performance (Nonverbal) and Quantitative subtests as well as the Otis-Lennon and CogAT

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## From Alpha & Beta to Wechsler IQ



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## The US Army Alpha Test (Verbal)

- tobacco** 1. Bull Durham is the name of  
**fruit** 2. The Mackintosh Red is a kind of  
**typewriter** 3. The Oliver is a  
**Mogul** 4. A passenger locomotive type is the  
**engineers** 5. Stone & Webster are well know  
**Superbas** 6. The Brooklyn Nationals are called  
**fabric** 7. Pongee is a  
**corn** 8. Country Gentleman is a kind of  
**Mckinley** 9. The President during the Spanish War was  
**cigarette** 10. Fatima is a make of

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

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### WJ-IV Items from Cognitive and Achievement Tests:

#### Cognitive: Oral Vocabulary Subtest 1

**Sample Items**  
 Point to *near* on subject's page and say: **Another word that means near is close** (pronounced kloz, not kloz).

A. Point to *big* on subject's page and say: **Tell me another word for big.**  
 ▲ **Correct:** large, gigantic, huge

◆ **A: Error or No Response**  
 Score item 0. Say: **Another word for big is large.** Repeat Sample Item A.

B. Point to *nap* and say: **Tell me another word for nap.**  
 ▲ **Correct:** sleep, rest, snooze

◆ **B: Error or No Response**  
 Score item 0. Say: **Another word for nap is sleep.** Repeat Sample Item B.

#### Achievement: Reading Vocabulary-Synonyms Subtest 17

**Sample Items**  
 Point to *street* on subject's page and say: **Another word that means street is road.**

A. Point to *large* on subject's page and say: **Tell me another word for large.**  
 ▲ **Correct:** big, enormous, gigantic, huge

◆ **A: Error or No Response**  
 Score item 0 and say: **Another word for large is big.** Repeat Sample Item A.

B. Point to *sleep* and say: **Tell me another word for sleep.**  
 ▲ **Correct:** nap, doze, rest, snooze

◆ **B: Error or No Response**  
 Score item 0 and say: **Another word for sleep is nap.** Repeat Sample Item B.

Do not read any other items or tell subject any other words during this test.

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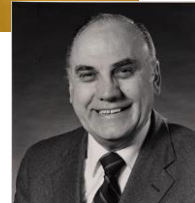
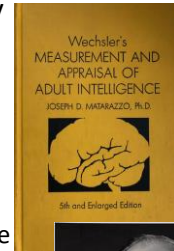
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Very Similar  
 Items on  
 "Different"  
 Tests

## The Problem with Verbal and Quantitative tests

- When English is required in a vocabulary test of general ability this disadvantages ELL students and those with limited educational opportunity.
- Matarazzo (1972) wrote about the Wechsler Scales
  - "...Vocabulary is necessarily influenced by ... education and cultural opportunities (p. 218)"
  - when referring to the Arithmetic subtest, "...its merits are lessened by the fact that it is influenced by education (p. 203)."
- The tests we use vary based on the amount of English language skills, and general verbal knowledge, required
- What about the Army Beta test (i.e. NONVERBAL) ?



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## Knowledge is Included in "Ability" Tests

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

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## 1920 Army Testing (Yoakum & Yerkes)

Note there is no mention of measuring verbal and nonverbal intelligences – **they saw a social justice issue...and today in the era a BLM the need is even more urgent**

### METHODS AND RESULTS

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Why Beta?

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

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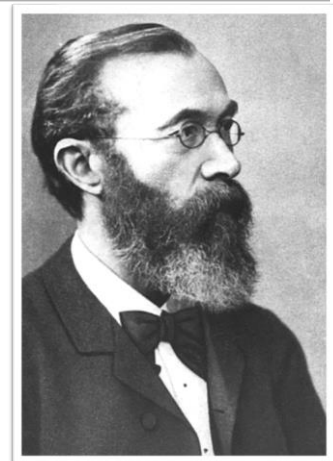
### CONCEPT OF GENERAL INTELLIGENCE 61

**The Criteria of a Test of Intelligence.** — Influenced both by 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, which we may discuss under the four following headings:

1. *Tests must be relatively new.* — A good intelligence test must avoid as much as possible anything that is commonly learned by the subjects tested. In a broad sense this rests upon a differentiation between knowledge and intelligence. To use as a test of intelligence something that is commonly taught in school is not desirable, because those children who have reached 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. To ask the question, "Who discovered America?" would be indicative of the school progress or general cultural environment of the child rather than of his general intelligence. Failure to answer might indeed be due to lack of intelligence in the case of school children of a certain grade in which this had been a matter of instruction, but on the other hand a very intelligent child might fail to answer owing to the fact of his not being in the grade in which this was taught.

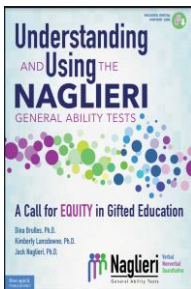
## Pintner (Intelligence Testing, 1923)

- This is a social justice issue for those from disadvantaged communities and those with limited education



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# Race and Ethnic Differences by Ability Test



Notes: The results summarized here were reported for the Otis-Lennon School Ability Test by Avant and O'Neal (1986); Stanford-Binet IV by Wasserman (2000); Woodcock-Johnson III race differences by Edwards & Oakland (2006) and ethnic differences by Sotelo- Dynega, Ortiz, Flanagan & Chaplin (2013); CogAT7 by Carman, Walther and Bartsch (2018); WISC-V by Kaufman, Raiford & Coalsen (2016); Kaufman Assessment Battery for Children-II by Lichenberger, Sotelo- Dynega and Kaufman (2009); CAS by Naglieri, Rojahn, Matto & Aquilino (2005); CAS-2 and CAS2: Brief by Naglieri, Das & Goldstein, 2014; Naglieri Nonverbal Ability Test by Naglieri and Roming (2000), and Naglieri General Ability Tests by Naglieri, Brulles and Lansdowne (2021).

From: Brulles, D., Lansdowne, K. & Naglieri, J. A. (2022). Understanding and Using the Naglieri General Ability Tests: A Call to Equity in Gifted Education. Minneapolis, MN: Free Spirit Publishing.

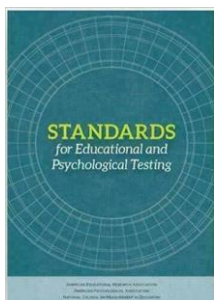
Race and Ethnic Standard Score Differences Across Intelligence Tests	By Race	By Ethnicity
<b>Tests that require knowledge</b>	<b>Mn = 11.5</b>	<b>Mn = 9.2</b>
Otis-Lennon School Ability Test (distric wide)	13.6	
Stanford-Binet IV (normative sample)	12.6	
WISC-V (normative sample)	11.6	
WJ- III (normative sample)	10.9	10.7
CogAT7 (Nonverbal scale)	11.8	7.6
WISC-V (statistical controls normative sample)	8.7	
<b>Tests that require minimal knowledge</b>	<b>Mn = 4.1</b>	<b>Mn = 2.6</b>
K-ABC (normative sample)	7.0	
K-ABC (matched samples)	6.1	
CAS-2 (normative sample)	6.3	4.5
CAS (statistical controls normative sample)	4.8	4.8
CAS-2 (statistical controls normative sample)	4.3	1.8
CAS-2 Brief (normative samples)	2.0	2.8
NNAT (matched samples)	4.2	2.8
Naglieri General Ability Test-Verbal	2.2	1.6
Naglieri General Ability Test-Nonverbal	1.0	1.1
Naglieri General Ability Test-Quantitative	3.2	1.3

Note: Even though a test may not show psychometric bias (Worrell, 2019) those tests with academic content that show large mean score differences are not equitable and are unfair.

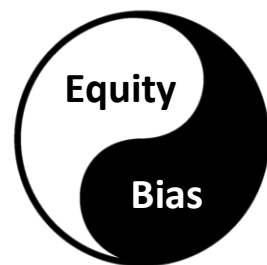
# Test Bias vs Test Equity

According to the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 2014) Psychometric TEST BIAS and EQUITY are two different ways of measuring test fairness.


Equitable Measurement



- ... if a person has had limited opportunities to learn the content in a test of intelligence, *that test may be considered unfair* (because it penalizes students for not knowing the answers) even if the norming data do not demonstrate test bias.
- Evidence of EQUITY is examined by test content and mean score differences



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**WE CAN DO  
BETTER**

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

— *Maya Angelou* —

@Inspiring

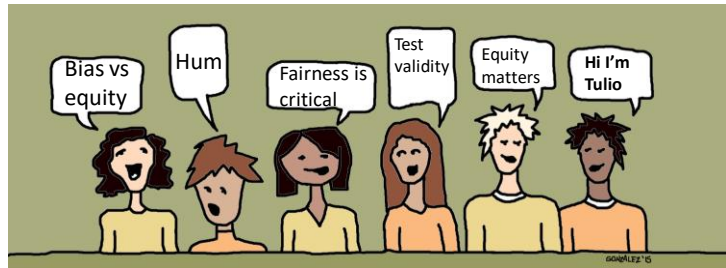
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## Core Group Activity

### QUESTION:

What is your professional responsibility regarding socially just and equitable assessment given the impact you have on a student's life?



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## Ideas to Consider



### My Professional Journey

- An Awakening About Traditional Intelligence Tests

### A Theory Based on Brain Function

- Thinking vs Knowing and Social Justice

### From PASS to CAS2

- A Different View of People

### Research Update

- PASS and Equity – Measure Thinking not Knowing
- To *g* or not to *g*

### Administration and Interpretation Issues

- Test order, subtest interpretation, etc.

### Reasons To Change

- Validity of PASS Theory

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# Shift from Traditional To Second Generation Intelligence Tests

→ Wechsler, et al

→ **Cognitive Assessment  
System 2<sup>nd</sup> Edition**

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## Intelligence as Neurocognitive Functions

- In my first working meeting with JP Das (February 11, 1984) we proposed that intelligence was better REinvented as neurocognitive processes and we began development of the **Cognitive Assessment System** (Naglieri & Das, 1997).
- We conceptualized intelligence as Planning, Attention, Simultaneous, and Successive (PASS) neurocognitive processes based on Luria's concepts of brain function.



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## CAS2 Measures Thinking (PASS) not Knowing

- What does the student have to **know** to complete a task?
  - *This is dependent on educational opportunity (e.g., Vocabulary, Arithmetic, phonological skills, etc.)*



- How does the student have to **think** to complete a task?
- This is dependent on the brain's neurocognitive processes*

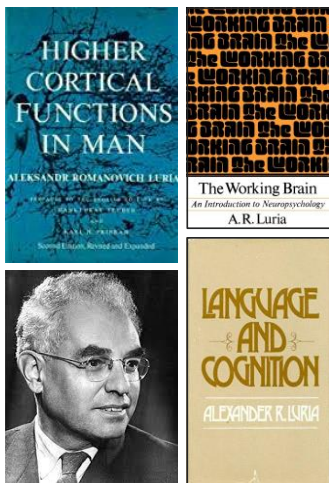
I need a PLAN !



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## PASS Neurocognitive Theory



- **P**lanning = THINKING ABOUT HOW YOU DO WHAT YOU DECIDE TO DO
  - **A**ttention = BEING ALERT AND RESISTING DISTRACTIONS
  - **S**imultaneous = GETTING THE BIG PICTURE
  - **S**uccessive = FOLLOWING A SEQUENCE
- PASS** = 'basic psychological processes'

**NOTE:** Easy to understand concepts!

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# PASS Provides a Common Language

➤ Psychologists, teachers, parents, and students can all use a common language to describe abilities without the esoteric terms we have used for years – NO psychobabble

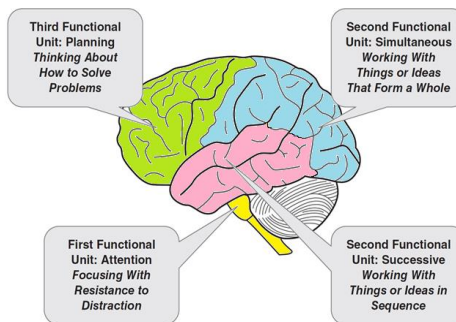


Figure 1.2 Three Functional Units and Associated Brain Structures  
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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# Neuropsychological Correlates of PASS

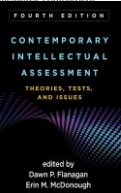
Naglieri, J. A., & Otero, T. M. Redefining Intelligence as the PASS Theory of Neurocognitive Processes.

## CHAPTER 6

Redefining Intelligence with the Planning, Attention, Simultaneous, and Successive Theory of Neurocognitive Processes

Practitioners and test authors have become increasingly conscious of the need for theory-based intelligence tests. Although several theories of intelligence have been attached to traditional ability tests such as the Wechsler scales (Plucker & Esping, 2014), one theory first described by Das, Kirby, and Jarman (1979), was used explicitly to develop a new way to construct an intelligence test. In 1997, Naglieri and Das (1997a) published the Cognitive Assessment System (CAS), which was based on a neurocognitive theory called planning, attention, simultaneous, and successive (PASS) processing. These authors argued that a neurocognitive theory of intelligence provides the foundation necessary for test construction and is equally important for test interpretation. They also suggested that traditional IQ tests, which were based largely on the work of the U.S. military (see Naglieri, 2015), were too limited and could be improved if the constructs that were measured were related to brain functions. Naglieri and Das anticipated that the PASS neurocognitive approach would yield better diagnostic information, have relevance to instructional decision making, and be more appropriate for diverse populations (Naglieri & Otero, 2011, 2017).

the four PASS processes. PASS theory has been most recently operationalized in the Cognitive Assessment System—Second Edition (CAS2; Naglieri, Das, & Goldstein, 2014a), the CAS2: Español (Naglieri, Moreno, & Otero, 2017), the CAS2: Brief (Naglieri, Das, & Goldstein, 2014b), and the CAS2: Rating Scale (Naglieri, Das, & Goldstein, 2014c). We describe these tests comprehensively in Chapter 15 of this book. The PASS theory and neurocognitive perspective from that of traditional but in part, subsets requiring knowledge). These batteries the Army mental testing program and Yerkes (1920) and PASS theory, an operational CAS2, has created an open field of intelligence and ability testing. (1) That a test be based on a theory of intelligence and ability processes defined by the test, not the content of the test.



## 28 Cognitive Assessment System: Redefining Intelligence From a Neuropsychological Perspective

Jack A. Naglieri and Tulio M. Otero

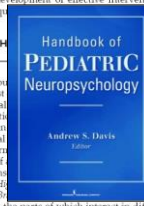
### INTRODUCTION

Pediatric neuropsychology has become an important field for understanding and treating developmental, psychiatric, psychosocial, and learning disorders. By addressing both brain functions and environmental factors intrinsic in complex behaviors, such as thinking, reasoning, planning, and the variety of executive capacities, clinicians are able to offer needed services to children with a variety of learning, psychiatric, and developmental disorders. Brain-behavior relationships are investigated by neuropsychologists by interpreting several aspects of an individual's cognitive, language, emotional, social, and motor behavior. Standardized instruments are used by neuropsychologists to collect information and derive inferences about brain-behavior relationships. Technology, such as magnetic resonance imaging (MRI), functional MRI (fMRI), positron emission tomography, computerized tomography, and diffusion tensor imaging, has reduced the need for neuropsychological tests to localize and assess brain damage. Neuropsychological tests, however,

Such tests should not only evaluate the underlying processes necessary for efficient thinking and behavior but also provide for the development of effective interventions and address the p

### FROM NEUROPSYCH TO ASSESSMENT

Luria's theoretical approach perhaps one of the most 2008). Luria's conceptual of brain-behavior relationships that the clinician the brain, the functional syndromes and impair and clinical methods of theoretical formulations lated in works such as H 1980) and *The Working B* as a functional mosaic, the parts of which interact in dif



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## PASS Theory Based on Brain Function – Planning

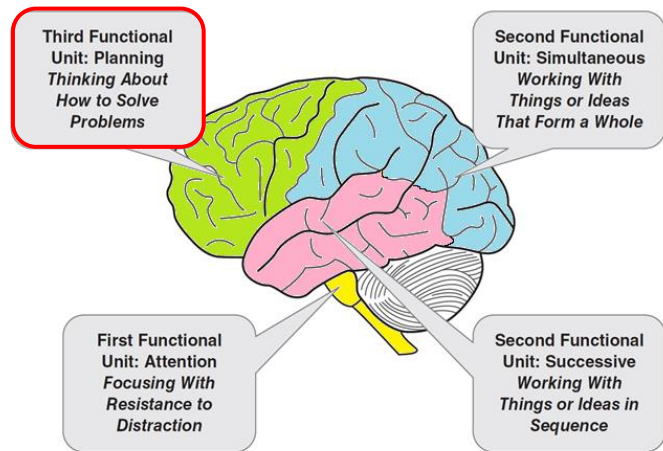


Figure 1.2 Three Functional Units and Associated Brain Structures  
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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## PASS Theory: Planning

- Planning is a term used to describe a neurocognitive function similar to metacognition and executive function
- Planning is needed for setting goals, making decisions, predicting the outcome of one's own and others actions, impulse control, strategy use and retrieval of knowledge
- Planning helps us make decisions about how to solve any kind of a problem from academics to social situations and life in general
- Math calculation, written expression, etc

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# CAS2: Rating Scale Planning

**Directions for Items 1–10.** These questions ask how well the child or adolescent decides how to do things to achieve a goal. They also ask how well a child or adolescent thinks before acting and avoids impulsivity. Please rate how well the child or adolescent creates plans and strategies to solve problems.

During the past month, how often did the child or adolescent . . .

	Never	Rarely	Sometimes	Frequently	Always
1. produce a well-written sentence or a story?	0	1	2	3	4
2. evaluate his or her own actions?	0	1	2	3	4
3. produce several ways to solve a problem?	0	1	2	3	4
4. have many ideas about how to do things?	0	1	2	3	4
5. have a good idea about how to complete a task?	0	1	2	3	4
6. solve a problem with a new solution when the old one did not work?	0	1	2	3	4
7. use information from many sources when doing work?	0	1	2	3	4
8. effectively solve new problems?	0	1	2	3	4
9. have well-described goals?	0	1	2	3	4
10. consider new ways to finish a task?	0	1	2	3	4

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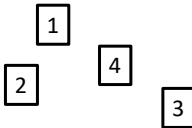
**Planning Raw Score**

Naglieri

## Planning Subtests

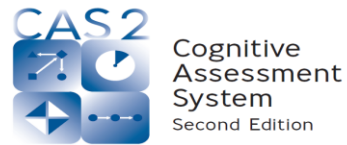
Planned Codes

Planned Connections



Planned Number Matching

5176 5761 5167 1576 5176 1567



### Examiner Record Form

Jack A. Naglieri J. P. Das Sam Goldstein

Subtest	Raw Score	Scaled Score				
		PLAN	SIM	ATT	SUC	
Planned Codes (PCd)						
Planned Codes (PCc)						
Planned Connections (PCn)						
Planned Number Matching (PNM)						
Matrices (MAT)						
Verbal-Spatial Relations (VSR)						
Figure Memory (FM)						
Expressive Attention (EA)						
Number Detection (ND)						
Receptive Attention (RA)						
Word Series (WS)						
Sentence Repetition/Questions (SR/SQ)						
Visual Digit Span (VDS)						
		PLAN	SIM	ATT	SUC	FS
Sum of Subtest Scaled Scores		+	+	+	+	
PASS Composite Index Scores						
Percentile-Rank						
Upper						
% Confidence Interval						
Lower						

A	B	C	D
X	O	O	O

---

A	B	C	D	A
X	O	O		

A	B	C	D	A
X	O			

A	B	C	D	A
X	O			

A	B	C	D	A
X	O			

## Planned Codes Page 1

- ▶ Jack Jr. at age 5
- ▶ Child fills in the codes in the empty boxes
- ▶ After being told the test requirement, examinees are told: "You can do it any way you want"

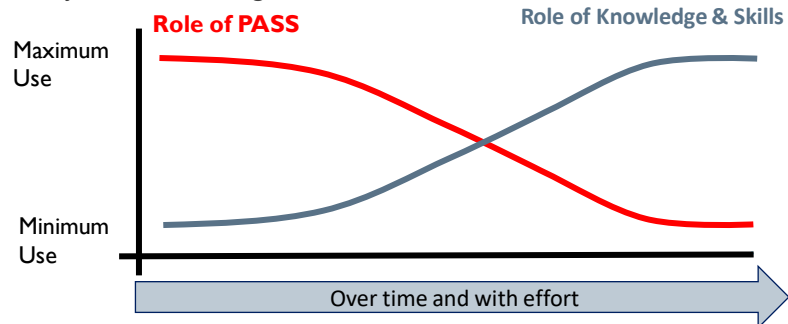
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## Planning Learning Curves

- ▶ Learning depends upon many factors especially PASS
- ▶ When a task is practiced and learned it requires less thinking (PASS) and becomes a skill
- ▶ At first, PASS plays a major role in learning



Note: A **skill** is the ability to do something well with minimal effort (thinking)

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## Math strategies stimulate thinking

Name \_\_\_\_\_

**Doubles and Near Doubles**

double  $8 + 8 = 16$  near double  $8 + 9 = 17$

How many are there?

1. Ring the double. Add.

$6 + 6 = 12$   $5 + 5 = 10$   
 $6 + 7 = 13$   $5 + 6 = 11$

3.  $7 + 7 = 14$   $4 + 4 = 8$   
 $7 + 8 = 15$   $4 + 5 = 9$

**CHECK** If you know the sum of  $8 + 8$ , how can you find  $8 + 9$ ?

three hundred thirty-five 335

This work sheet encourages the child to use strategies (plans) in math such as: "If  $8 + 8 = 16$ , then  $8 + 9$  is 17"

**Note to the Teacher:** When we teach children skills by helping them use strategies and plans for learning, we are teaching both knowledge and processing. Both are important.

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## Brain Break – STAND AND STRETCH



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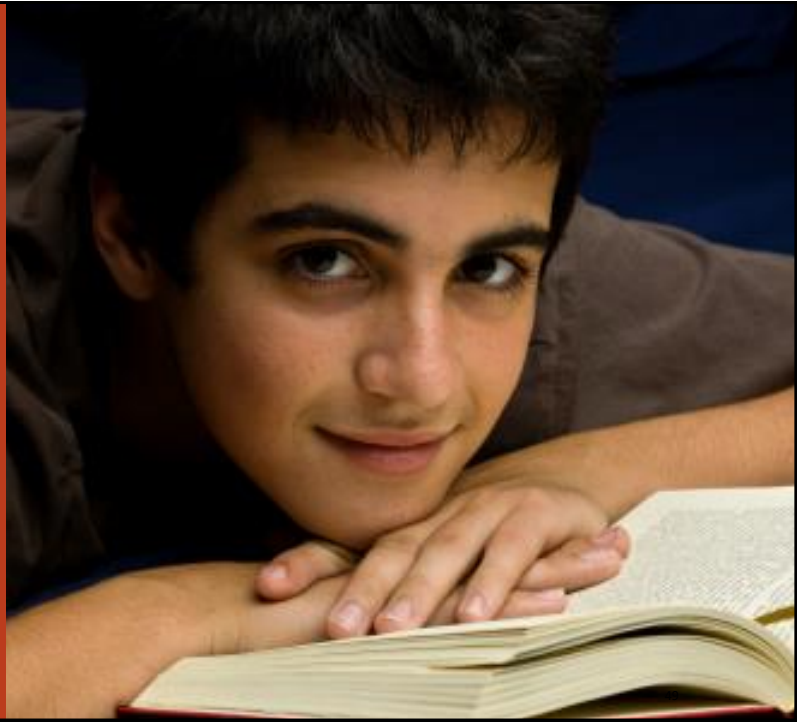
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# The Case of Rocky

Strengths with Specific  
Learning Disability and  
ADHD



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## The case of Rocky

- ▶ Rocky<sup>1</sup> went to school in a large middle-class district
- ▶ In first grade Rocky was significantly below grade benchmarks in reading, math, and writing.
  - He received group reading instruction weekly and six months of individual reading instruction but minimal progress  
→retained
- ▶ By the middle of his second year in first grade he still struggling
  - decoding, phonics, and sight word vocabulary; math problems, addition, problem solving activities and focusing and paying attention.”
- ▶ After two years of special team meetings and special reading instruction he is now working two grade levels below his peers in reading, writing, and math

Note: This child's name and other potentially revealing data have been changed to protect his identity.

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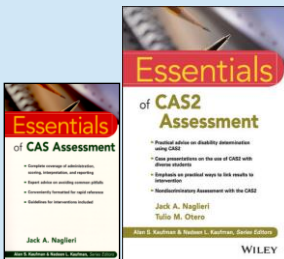
# Answering the Question: “Why the student struggles?”

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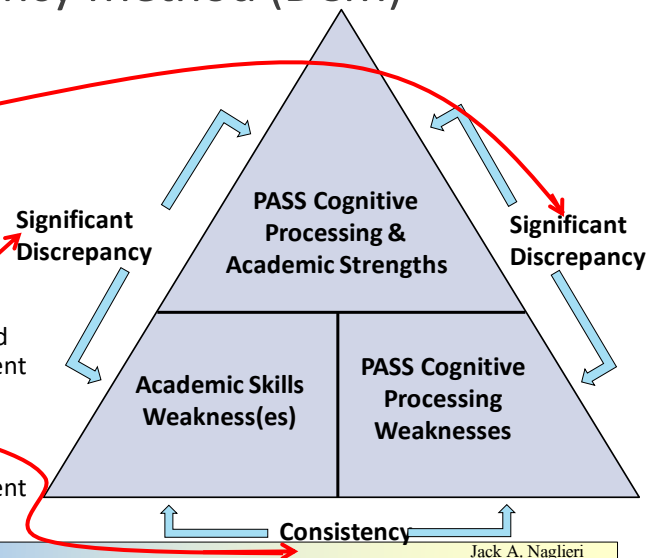
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## Discrepancy Consistency Method (DCM)

- The Discrepancy Consistency Method 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

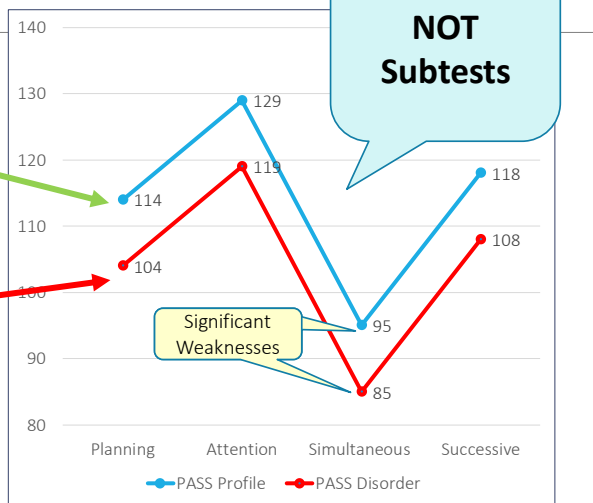


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# How to Determine a Disorder

- Two criteria for a disorder
  - Significant variation in relation to student's average has *instructional relevance*
  - Significant variation in relation to student's average **AND** a standard score less than 90 (< 25<sup>th</sup> %tile) *supports designation as SLD*



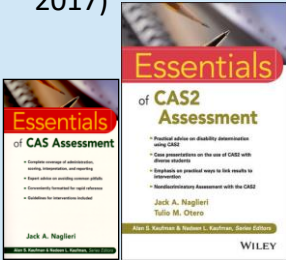
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# CAS2 PSW Analyzer for WJ4, KTEA3, FAR, FAM, Bateria

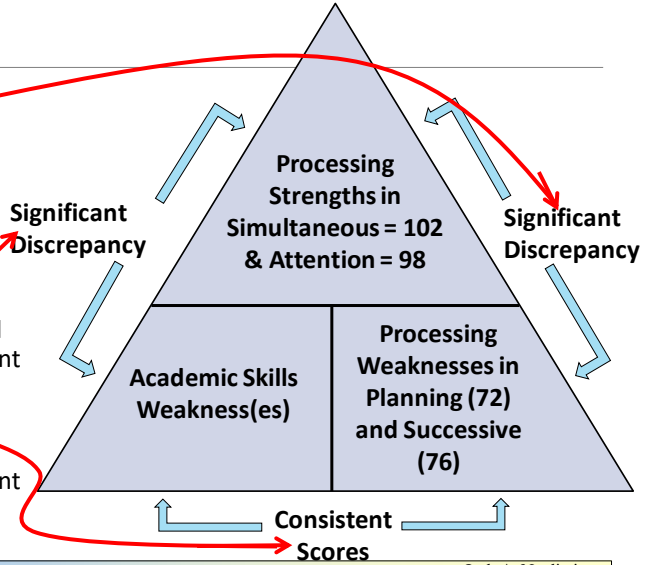
- Enter PASS and Achievement test standard scores and all comparisons are evaluated

**FREE** – on [www.jacknaglieri.com](http://www.jacknaglieri.com)

- 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



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# Interventions for Rocky

## Using Plans to Overcome Anxiety

Some children feel very anxious when they approach a new situation, and they are not sure what to do.

## Graphic Organizers for Connecting and Remembering Information

Remembering and relating information is a common part of learning and daily life. Students are often expected to learn large amounts of new and unfamiliar information. Learning facts requires the student to see how information is connected or related. Students often remember this information better when they use graphic organizers.

## Segmenting Words for Reading/Decoding and Spelling

Decoding a written word requires the person to make sense out of printed letters and words and to translate letter sequences into sounds. This demands understanding the sounds that letters represent.

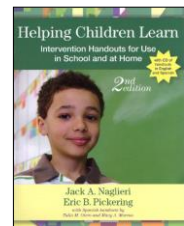
## Chunking for Reading/Decoding

Reading/decoding requires the student to look at the sequence of the letters in words and understand the organization of specific sounds in order. Some students have difficulty with long sequences of letters and may benefit from instruction that helps them break the word into smaller, more manageable units, called *chunks*. Sometimes the order of the sounds in a word is more easily organized if the entire word is broken into these units. These chunks can be combined into

- Helping Children Learn Intervention Handouts for Use in School and at Home, *Second Edition*

By Jack A. Naglieri, Ph.D., & Eric B. Pickering, Ph.D.,

- Spanish handouts by
- Tullio Otero, Ph.D., &
- Mary Moreno, Ph.D.



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## A Cognitive Strategy Instruction to Improve Math Calculation for Children With ADHD and LD: A Randomized Controlled Study

Jackie S. Iseman<sup>1</sup> and Jack A. Naglieri<sup>1</sup>

### Abstract

The authors examined the effectiveness of cognitive strategy instruction based on PASS (Planning, Attention, Simultaneous, Successive) given by special education teachers to students with ADHD randomly assigned by classroom. Students in the experimental group were exposed to a brief cognitive strategy instruction for 10 days, which was designed to encourage

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DOI: 10.1177/0022219410391190  
http://jlof.sagepub.com  
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### Planning Facilitation for Math Calculation

Math calculation is a complex activity that involves recalling basic math facts, following procedures, working carefully, and checking one's work. Math calculation requires a careful (i.e., planful) approach to follow all of the necessary steps. Children who are good at math calculation can move on to more difficult math concepts and problem solving with greater ease than those who are having problems in this area. For children who have trouble with math calculation, a technique that helps them approach the task planfully is likely to be useful. Planning facilitation is such a technique.

reas the comparison group received-  
eivement were given at pretest. All  
dized achievement tests (*Woodcock-  
ed Achievement Test, Second Edition*,  
ency was also administered at 1 year  
up but not the comparison group on  
ations (0.40 and -0.14, respectively).  
on group. These findings suggest that  
nsfer to standardized tests of math  
nd continued advantage 1 year later

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## Instructional Sessions

- Math lessons were organized into “instructional sessions” delivered over 13 consecutive days
- Each instructional session was 30-40 minutes
- Each instructional session was comprised of three segments as shown below

10 minutes	10-20 minutes	10 minutes
10 minute math worksheet	Planning Facilitation or Normal Instruction	10 minute math worksheet

### Experimental Group

19 worksheets with Planning Facilitation

Vs.

### Control Group

19 worksheets with Normal Instruction

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# Planning (Metacognitive) Strategy Instruction

## Teachers Asked

- ▶ Teachers *facilitated* discussions to help students become more self-reflective about use of strategies
- ▶ Teachers asked questions like:
  - What was your goal?
  - Where did you start the worksheet?
  - What strategies did you use?
  - How did the strategy help you reach your goal?
  - What will you do again next time?

## Students Responded

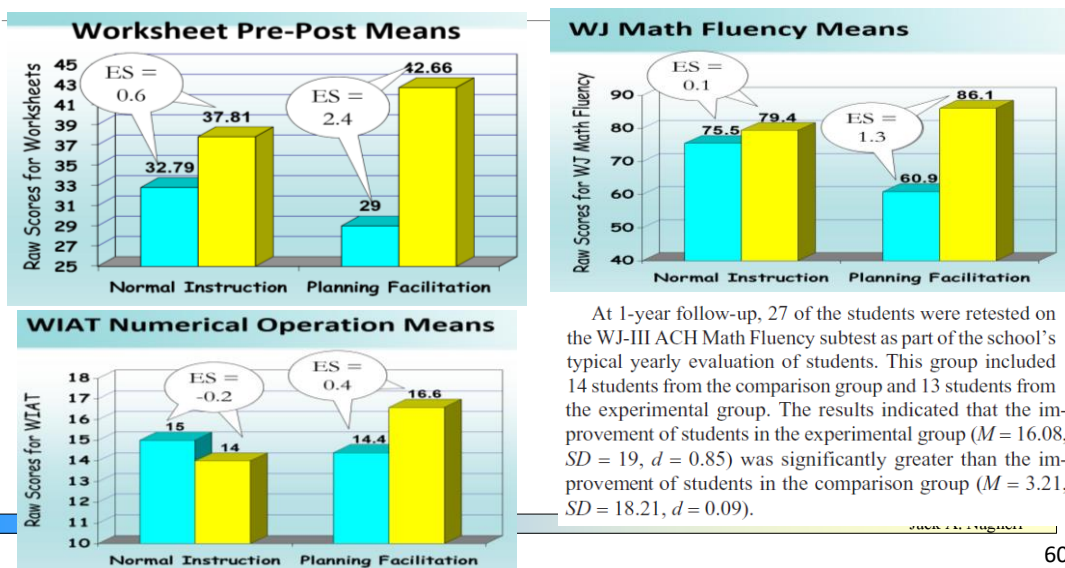
- ▶ “My goal was to do all of the easy problems on every page first, then do the others.”
- ▶ “I do the problems I know, then I check my work.”
- ▶ “I draw lines to keep the columns straight”
- ▶ “I did the ones that took the least time”

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## Pre-Post Means and Effect Sizes for the Students with LD and ADHD

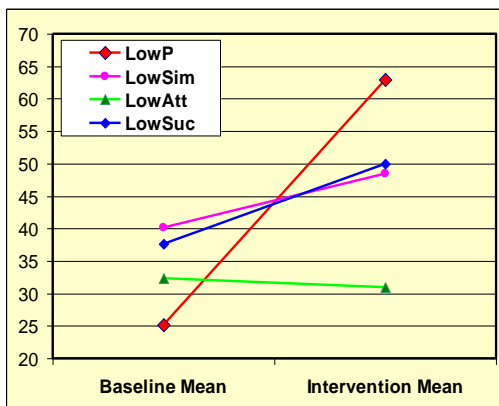


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# Pre-Post Changes for the Students with LD and ADHD

- The students with a weakness in Planning, Simultaneous or Successive processing scales benefited from the Planning Facilitation method
- Importantly, the students with a weakness in Planning improved the most
- This has been the case in all the studies of Planning Facilitation
- **COGNITION PREDICTS RESPONSE TO INTERVENTION**



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## Summary of PASS Intervention Research in Essentials of CAS2

**Effectiveness of a Cognitive Strategy Intervention in Improving Arithmetic Computation Based on the PASS Theory**

Jack A. Naglieri and Deanne Johnson

**Abstract**

The purpose of this study was to determine if an instruction designed to facilitate planning, given by teachers to their class as a group, would have differential effects depending on the specific Planning, Attention, Simultaneous, Successive (PASS) cognitive characteristics of each child. A cognitive strategy instruction that encouraged planning was provided to the group of 19 students with learning disabilities and mild mental impairments. All students completed math worksheets during 7 baseline and 14 intervention sessions. During the intervention phase, students engaged in self-reflection and verbalization of strategies about how the arithmetic computation worksheets should be completed. The sample was sorted into one experimental and four control groups after the experiment were four groups with a cognitive weakness in each PASS scale from the Cognitive Assessment System and one of the weaknesses contained a size of 4 children in the plan.

**A Cognitive Strategy Instruction to Improve Math Calculation for Children With ADHD and LD: A Randomized Controlled Study**

Jackie S. Iteaman<sup>1</sup> and Jack A. Naglieri<sup>1</sup>

**Abstract**

The authors examined the effectiveness of cognitive strategy instruction based on PASS (the Successive) given by special education teachers to students with ADHD randomly assigned experimental groups were exposed to a brief cognitive strategy instruction for 10 days, with development and application of effective planning for mathematical computation, whereas in standard math instruction. Standardized tests of cognitive processes and math achievement students completed math worksheets throughout the experimental phase. Standardized Johnson Tests of Achievement, Third Edition, Math Fluency and Wechsler Individualized Achievement Test (WIAT-III) Numerical Operations were administered pre- and post-intervention, and Math Fluency was also administered at 1 year follow-up. Large pre-post effect sizes were found for students in the experimental group but not the comparison group on math worksheets (0.85 and 0.26), Math Fluency (1.17 and 0.09), and Numerical Operations (0.40 and +0.14, respectively). At 1 year follow-up, the experimental group continued to outperform the comparison group. These findings suggest that students with ADHD evidenced greater improvement in math worksheets, but transfer to standardized tests of math (which measured the skill of generalizing learned strategies to other similar tasks), and continued advantage 1 year later when provided the PASS-based cognitive strategy instruction.

**REMEDATING READING COMPREHENSION DIFFICULTIES: A COGNITIVE PROCESSING APPROACH**

SHAMITA MAHAJAPATRA  
Chitro College, Cuttack, Orissa, India

J. P. DAS, HOLLY STACK-CUTLER, and RAJNO PARRILA  
Department of Educational Psychology, University of Alberta, Edmonton, Alberta, Canada

**Abstract**

The efficacy of a cognitive-based remediation program was investigated with 14 English-as-a-second-language (ESL) poor readers in Grade 4 who had significant difficulty in comprehension and 14 normal ESL readers in Grade 4 who achieved no remediation. Both groups were selected from 2 English medium schools.

**Mathematics Instruction and PASS Cognitive Processes: An Intervention Study**

Jack A. Naglieri and Suzanne H. Gotting

**Abstract**

The purpose of this study was to determine if an instruction designed to facilitate planning, given by a group, would have differential effects depending on the specific cognitive characteristics of the individual instruction that facilitated planning was provided to a group of 12 students with learning disabilities. All work sheets during 7 sessions of baseline and 21 sessions of intervention (when the instruction designed provided). During the intervention phase, students engaged in self-reflection and verbalization of strategy problems were completed. The class was sorted according to planning scores, obtained using the Cog which is based on Planning, Attention, Simultaneous, Successive (PASS) theory and low- and high-planning identified. The results, consistent with previous research, showed that teaching content and regulated beneficial effects for all students but was especially helpful for those who were poor in planning, as do implications of these findings are provided.

**PLANNING FACILITATION AND READING COMPREHENSION: INSTRUCTIONAL RELEVANCE OF THE PASS THEORY**

Frederick A. Haddad  
Kyrene School District, Tempe, Arizona

Y. Eric Garcia  
Northern Arizona University

Jack A. Naglieri  
George Mason University

Michelle Grinditch, Ashley McAndrews, Jane Eubanks  
Kyrene School District, Tempe, Arizona

**Abstract**

The purpose of this study was to evaluate whether instruction designed to facilitate planning would have differential benefits on reading comprehension depending on the specific Planning, Attention, Simultaneous, and Successive (PASS) cognitive characteristics of each child. A sample of 45 fourth-grade general education children was sorted into three groups based on each PASS scale score from the Cognitive Assessment System (CAS). The groups did not differ by CAS Full Scale standard score, chronological age, gender, or percent reading comprehension scores. After each child's pretest reading, comprehension instructional level was determined, a cognitive strategy instruction intervention was conducted. The children completed a reading comprehension passage at their respective instructional levels after the intervention. Results showed that children with a Planning weakness ( $n = 15$ ) benefited substantially (effect size of 1.32) from the instruction designed to facilitate planning. Children with no weakness ( $n = 22$ ; effect size = .52) or a Successive weakness ( $n = 11$ ; effect size of .86) did not benefit as much. These results support previous research suggesting that PASS profiles are relevant to instruction.

**Essentials of CAS2 Assessment**

Jack A. Naglieri  
Talia M. Ghawi

WILEY

Jack A. Naglieri

## Summary of Planning Studies

There have been 7 studies involving the Planning Facilitation methodology described in Helping Children Learn book and in every case students with low Planning scores on the CAS showed substantial improvement

Average Pre Post Percent Change in Math Accuracy for Students Low in Planning	% Change
Cormier, et al., (1990)	29
Kar, et al., (1992)	84
Naglieri & Gottling (1995)	178
Naglieri & Gottling (1997)	80
Naglieri & Johnson (1999)	142
Hald (2000)	29
Iseman & Naglieri (2011)	152
<b>Average</b>	<b>99</b>

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## Planning – a basic psychological process

- Because Planning is a neurocognitive process related to the front part of the brain it is by definition a way to define a 'basic psychological process' included in the description of a specific learning disability.

“(30) SPECIFIC LEARNING DISABILITY.—

“(A) IN GENERAL.—The term ‘specific learning disability’ means a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations.

“(B) DISORDERS INCLUDED.—Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

“(C) DISORDERS NOT INCLUDED.—Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

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# PASS Theory Based on Brain Function — Attention

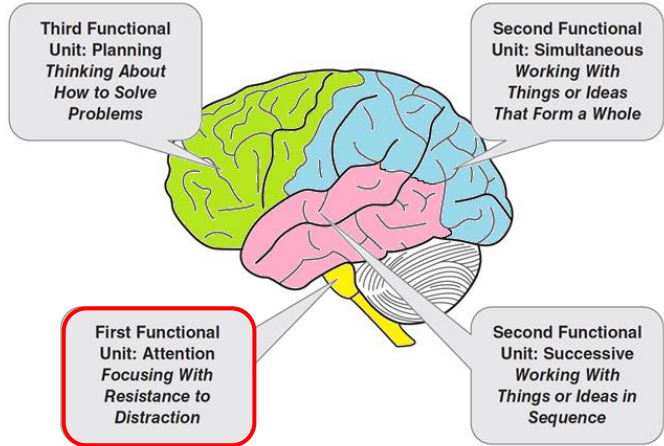


Figure 1.2 Three Functional Units and Associated Brain Structures  
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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## Attention Subtests

Expressive Attention

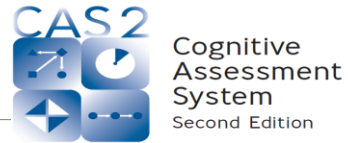
Number Detection

Find the numbers that look like this: 1 2

1	5	1	4	2	2	5
---	---	---	---	---	---	---

Receptive Attention

N n	T r	b t
TR	n b	A a



Examiner Record Form  
Jack A. Naglieri J. P. Das Sam Goldstein

Subtest	Raw Score	Scaled Score				
		PLAN	SIM	ATT	SUC	
Planned Codes (PCG)						
Planned Connections (PCN)						
Planned Number Matching (PNM)						
Matrices (MAT)						
Verbal-Spatial Relations (VSR)						
Figure Memory (FM)						
Expressive Attention (EA)						
Number Detection (ND)						
Receptive Attention (RA)						
Word Series (WS)						
Sentence Repetition/Questions (SR/SQ)						
Visual Digit Span (VDS)						
		PLAN	SIM	ATT	SUC	FS
Sum of Subtest Scaled Scores		+	+	+	+	
PASS Composite Index Scores						
Percentile-Rank						
Upper						
% Confidence Interval						
Lower						

66

66

# PASS Theory: Attention

- Attention is a basic psychological process we use to
  - selectively attend to some stimuli and ignores others
  - Focus our cognitive activity
  - Selective attention
  - Resistance to distraction
  - Listening, as opposed to hearing

RED	RED	BLUE
YELLOW	YELLOW	RED
BLUE	RED	YELLOW
BLUE	BLUE	BLUE
YELLOW	BLUE	YELLOW

BLU VERDE GIALLO  
VERDE GIALLO BLU

빨강 파랑 초록 노랑

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11. A 3:15 A.M.  
B 3:30 P.M.  
C 3:15 P.M.  
D 3:15 A.M.



leave school

11. 3:15 p.m.

12. Trent began studying at 5:00 P.M. and finished 1 hour and 22 minutes later. What time did he finish?  
A 6:22 A.M. B 5:22 P.M. C 6:10 P.M. D 6:22 P.M.

12. 6:22 p.m.

13. Maura began basketball practice at 3:00 P.M. and finished 50 minutes later. What time did she finish?  
A 3:50 P.M. B 3:05 A.M. C 4:05 P.M. D 4:50 A.M.

13. 3:50 p.m.

## Attention

READING COMPREHENSION IS DIFFICULT BECAUSE OF THE SIMILARITY OF THE OPTIONS

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# When a Student Understands ...



Figure 3.4. Frankie's self-portrait.

## Frankie's Weaknesses in Attention and Successive Processing



Frankie had trouble in school from the beginning. Although he was friendly and outwardly pleasant, his teachers sensed in him an undercurrent of anxiety and fear that he was not able to perform as well as his peers. Frankie was popular because he was very able to converse at an adult level, even though he sometimes looked as if he was not following what seemed to be "floating, out there some "it is like he loses focus for a while, r ears, but he comes back if you redirect fused when learning, for example, his 2)

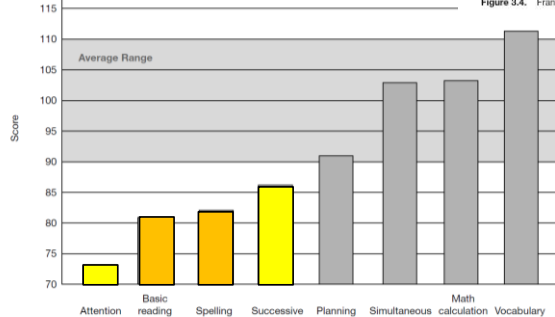


Figure 3.5. Frankie's PASS and selected achievement scores.

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Jose: Age 10, 5<sup>th</sup> Grade,  
Bilingual Student  
by Tulio M. Otero, Ph.D.

Jose reading problems and the teacher these concerns:

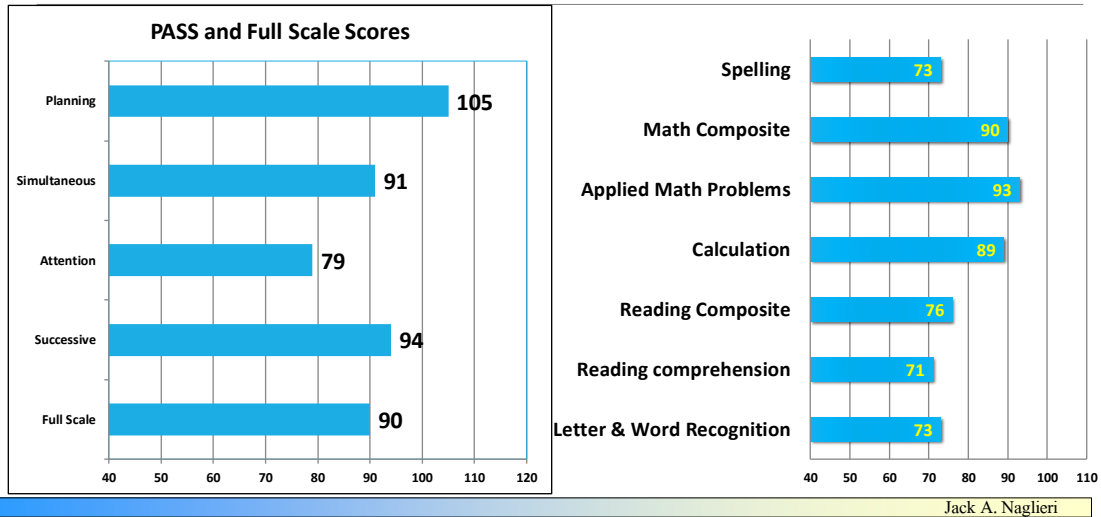
phonemic awareness, reading fluency, reading comprehension math problem-solving, spelling, written expression

Jose also receives ELL services and his current ACCESS scores are as follows: Listening 5.8, Speaking 1.9, Reading 2.8, Writing 3.5.

2018 WISC4 Spanish : VCI 55, PRI 92, WM 86, PS 91

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## CAS2 and KTEA-III Scores (January 2020)



71

71

## Jose was given this simple intervention

Remember to check how well you are attending. If you are having a problem, use a plan and look at this (taped to his desk).



From: Naglieri, J. A., & Pickering, E. B. (2010). *Helping Children Learn: Intervention Handouts for Use at School and Home (Second Edition)*. Baltimore, MD: Brookes Publishing.

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## Two weeks later!

- Teacher reported that José has increased his reading accuracy by at least 80%.
- He read 16 words correctly out of a list of 20.
- He has done this over the last 3 sessions.



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## Attention – a basic psychological process

- Because Attention is a neurocognitive process related to the brain it is by definition a way to define a 'basic psychological process' included in the description of a specific learning disability.

“(30) SPECIFIC LEARNING DISABILITY.—

“(A) IN GENERAL.—The term ‘specific learning disability’ means a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations.

“(B) DISORDERS INCLUDED.—Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

“(C) DISORDERS NOT INCLUDED.—Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

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# PASS Theory Based on Brain Function - Simultaneous Processing

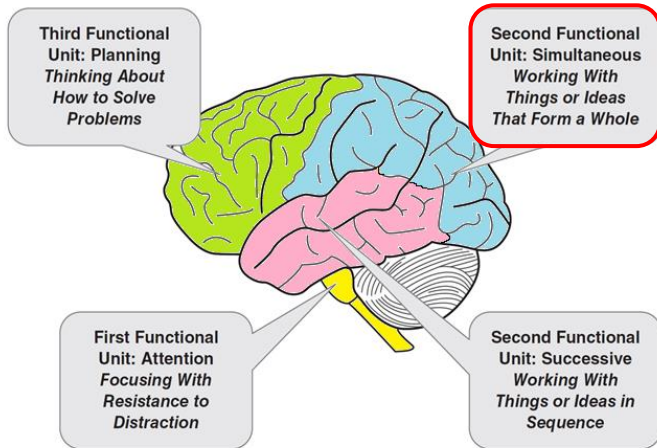
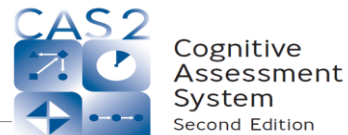


Figure 1.2 Three Functional Units and Associated Brain Structures  
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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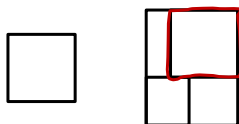
Examiner Record Form  
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## Simultaneous Subtests

Matrices

Verbal Spatial Relations

Figure Memory



Subtest	Raw Score	Scaled Score				
		PLAN	SIM	ATT	SUC	
Planned Codes (PCd)						
Planned Connections (PCn)						
Planned Number Matching (PNM)						
Matrices (MAT)						
Verbal-Spatial Relations (VSR)						
Figure Memory (FM)						
Expressive Attention (EA)						
Number Detection (ND)						
Receptive Attention (RA)						
Word Series (WS)						
Sentence Repetition/Questions (SR/SQ)						
Visual Digit Span (VDS)						
		PLAN	SIM	ATT	SUC	FS
Sum of Subtest Scaled Scores		+	+	+	+	-
PASS Composite Index Scores						
Percentile-Rank						
Upper						
% Confidence Interval						
Lower						

76

76

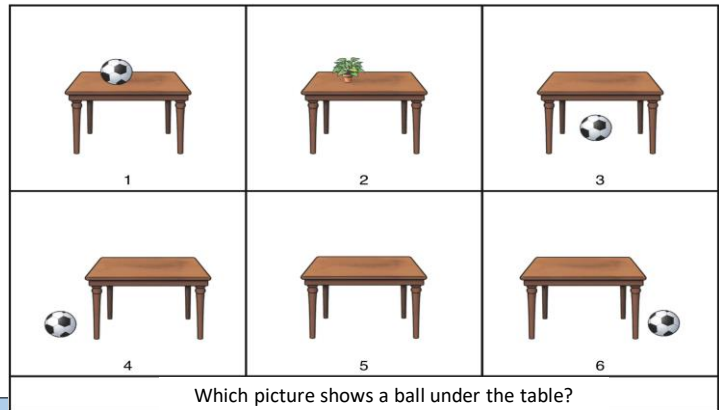
## PASS Theory: Simultaneous

➤ **Simultaneous** processing is used to integrate stimuli into groups

- Each piece must be related to the other
- Stimuli are seen as a whole

➤ Academics:

- Reading comprehension
- geometry
- math word problems
- whole language
- verbal concepts

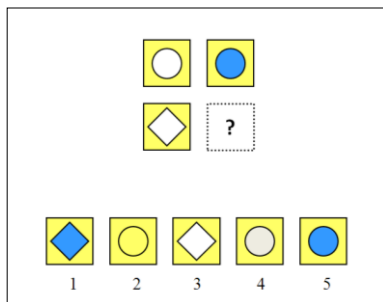


77

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## Thinking vs Knowing

Solving these analogies demands the same kind of thinking



Girl is woman as boy is to \_\_\_\_?

3 is to 6 as 4 is to \_\_\_\_?

C<sup>7</sup> is to F as E<sup>7</sup> is to \_\_\_\_?

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## And Consider this...

Why do  
*different* tasks  
use the *same*  
PASS process?



- Even though the tasks were different in content (shapes, words, numbers & musical notations) and modality (auditory and visual), they required **Simultaneous** processing!

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## Case of Alexandra (Tulio Otero)



- Alex is 8-years-old in the 3rd grade.
- Her home language is primarily Spanish, although she speaks English with siblings
- Alex has difficulty when encountering most reading and written language tasks.
- Alex was previously evaluated for special education
  - The test results indicated her overall cognitive abilities were in the Low Average range (WISC5).
  - Significant difficulty with reading fluency and automatic word recognition skills
  - Has strong decoding and phonological skills.
  - Spanish literacy achievement results in word reading and spelling fell within the Average range.
  - Her struggles were ascribed to attention problems stemming from ADHD and not a specific learning disability.
- She continues to have significant reading and writing difficulties, limited self-confidence, and struggles to complete her work.

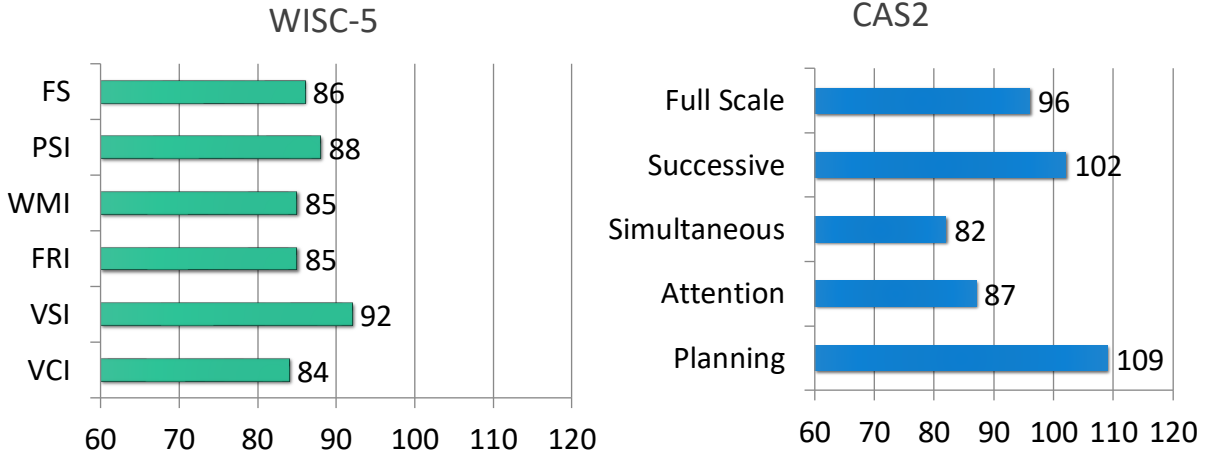
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80

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# Case of Alexandra



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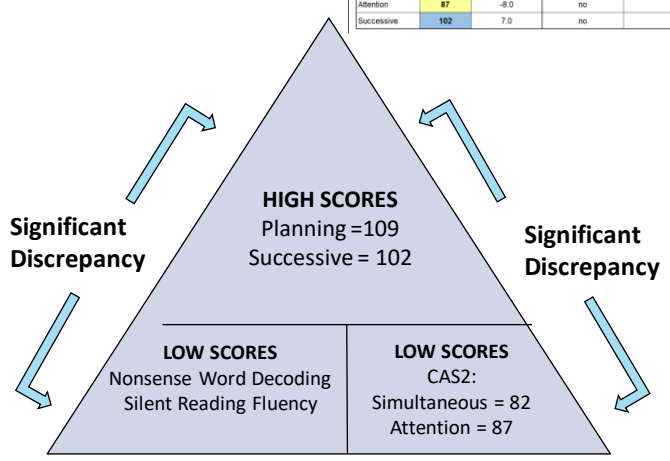
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# Case of Alexandra - SLD

Composite/Subtest	Standard	Percentile
	Scores	Rank
Reading Composite	105	63
Letter & Word Recognition	111	77
Reading Comprehension	99	47
Nonsense Word Decoding	80	9
Silent Reading Fluency	82	12
Math Composite	90	25
Math Concepts & Applications	88	21
Math Computation	95	37
Spelling	98	45

BOX #1 Is there a PASS Pattern of Strengths and Weaknesses (Discrepancy 1)?					
Differences Between PASS Scale Standard Scores and the Student's Average PASS Score (p = .05) for the CAS2 CORE battery:					
Cognitive Assessment System	Standard Score	PASS Mean & Differences	Significantly Different (at p = .05) from PASS Mean?	Strength or Weakness	
Planning	109	+14.0	yes		
Simultaneous	82	-13.0	yes	Weakness	
Attention	87	-8.0	no		
Successive	102	7.0	no		



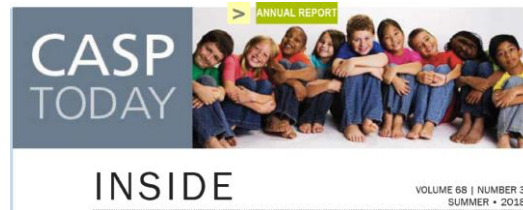
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## Discrepancy Consistency Method

- Case of Peter by Feifer & Naglieri
- 4th grade and performing below grade level in both reading and mathematics
- despite numerous interventions and classroom accommodations.
- He struggles to remember the sequence of steps when doing math
- He is inconsistent with basic math facts, struggles reading long passages and has difficulty decoding and spelling
- Peter has an outstanding memory for details of any type of learning experience



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## Two Types of Dyslexia (Feifer & Naglieri)

- (1) the phonological assembly of words or (2) the orthographic representation of words
- *Phonological Dyslexia*: students struggle sequencing individual sounds to read the printed word which demands **Successive Processing**.
  - reading pseudowords are especially difficult with the phonological assembly of words which has a high demand on the sequencing of letter and sounds.
- *Surface Dyslexia*: students have difficulty taking in the entire printed word form as a whole which requires **Simultaneous processing**.
  - These readers have difficulty on phonologically irregular words (*i.e. debt, yacht, onion, etc.*) because these words cannot be decoded in a sequential manner, and must be recognized as an orthographical unit.

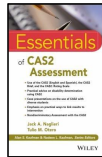
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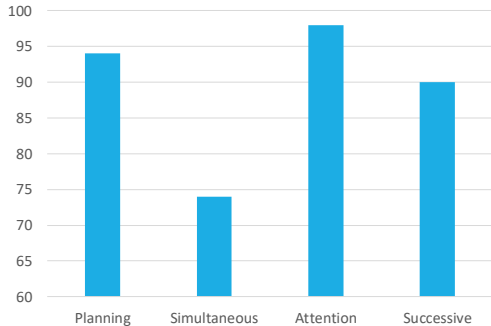
# Case of Nelson Surface Dyslexia

170 ESSENTIALS OF CAS2 ASSESSMENT



### Reason for Referral:

Nelson is a 9-year-old fourth-grade student who was referred for a comprehensive psychological evaluation because of concerns regarding his overall reading skills and difficulty completing most daily tasks in a timely manner.



**Table 5.3 Nelson's Scores on the KTEA-III Reading Subtests**

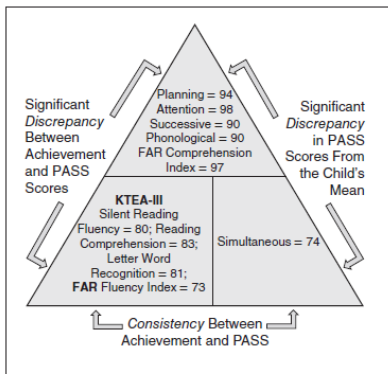
Reading	Age Norms	Percentile	Range
<b>Letter Word Recognition:</b> The student reads isolated letters and words of gradually increasing difficulty.	81 ± 5	10-53	Below average
<b>Noisense Word Decoding:</b> The student applies phonics and decoding skills to made-up words of increasing difficulty.	90 ± 5	25	Average
<b>Reading Comprehension:</b> The student reads a word and points to its corresponding picture or reads a simple instruction and responds by performing the action.	83 ± 10	13	Below average
<b>Silent Reading Fluency:</b> The student is required to read as many statements as possible in 2 minutes and must respond either "yes" or "no" as to whether each statement is valid.	80 ± 11	9	Below average
<b>KTEA-III Reading Composite Score</b>	81 ± 6	10	Below average

**Table 5.4 Nelson's Scores on the KTEA-III Math Subtests**

Math	Age Norms	Percentile	Range
<b>Math Concepts and Applications:</b> The student responds orally to applied math problems involving number concepts, time, money, measurement, and data analysis.	96 ± 6	39	Average
<b>Math Computation:</b> The student solves math equations in the response booklet including addition and subtraction.	87 ± 10	19	Below average
<b>Math Fluency:</b> This is a timed task requiring the student to solve as many single-digit addition, subtraction, multiplication, and division problems in a minute.	89 ± 11	23	Below average
<b>KTEA-III Math Composite Score</b>	90 ± 6	25	Average

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# Case of Nelson Surface Dyslexia



**Figure 5.5 Nelson's Discrepancy/Consistency Method of SLD Result**

### Recommendations for School

- Nelson would benefit from a targeted reading fluency intervention in order to increase text automatic recognition and fluency (e.g., Read Naturally, Great Leaps, RAVE-O, etc.).
- Nelson's orthographic processing skills were somewhat weak. Color-coding letter-various syllable and sound subtypes, particularly vowel diphthongs in phonetically irregular words, may be very helpful (e.g., *caution*, *dangerous*, etc.).
- Nelson may benefit from targeted writing activities to help reinforce letter and word recognition skills. Specific activities such as identifying which of three sight words is spelled correctly (e.g., *wuz*, *whas*, or *was*) may help to develop automaticity recognizing vowel patterns in words.
- Nelson should benefit from using graphic organizers, story maps, and other prewriting activities to assist him when organizing his thoughts when writing. In addition, he should have access to a word bank of words to assist him with spelling as well.
- Nelson might benefit from having access to a Franklin Word Speller and other technology devices and to assist with his overall spelling skills.
- In order to improve Simultaneous processing and facilitate text-visualization skills, have Nelson practice spelling words with white space in between each syllable in the word. Next, frame each letter in a box similar to the letter size. For example, the word *fascinate* would be written as fas cin ate. The visual space draws attention to the different word parts and the boxes provide organizational cues. A similar method

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INSIDE

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SUMMER • 2018

Table 1. Correspondence of Cognitive Assessment System - Second Edition Scales with Commonly Used Descriptions of Processing.

CAS2 Scales	Attention	Visual Processing	Auditory Processing	Phonological Processing	Sensory-Motor Skills	Association	Conceptualization	Expression
<b>Primary Scales</b>								
Planning		✓			✓		✓	✓
Attention	✓	✓						
Simultaneous		✓					✓	
Successive			✓	✓	✓	✓		
<b>Supplemental Scales</b>								
Executive Function			✓					
Executive Function with Working Memory			✓	✓				
Working Memory			✓	✓				
Verbal Content						✓		
Nonverbal Content							✓	
Speed/Fluency					✓			
Visual-Auditory Comparison		✓	✓					

Note: Association, conceptualization and expression are described as cognitive abilities.

# PASS and California Categories

# Brain Break – STAND AND STRETCH



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## PASS Theory Based on Brain Function – Successive Processing

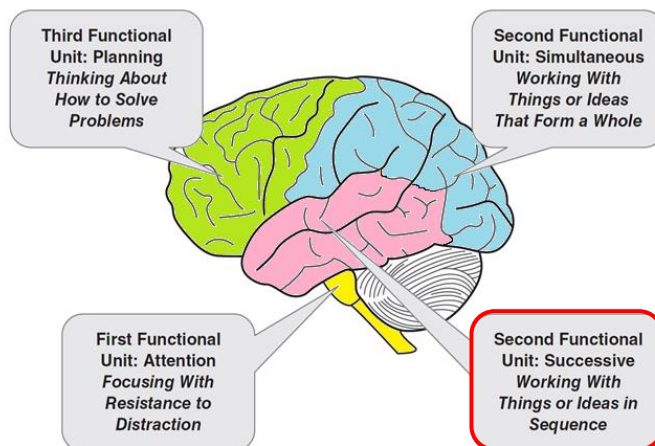


Figure 1.2 Three Functional Units and Associated Brain Structures  
From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

## Successive Subtests



Cognitive  
Assessment  
System  
Second Edition

### Examiner Record Form

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Word Series

Sentence Repetition or  
Sentence Questions

Visual Digit Span

Subtest	Raw Score	Scaled Score				
		PLAN	SIM	ATT	SUC	
Planned Codes (PGd)						
Planned Connections (PLn)						
Planned Number Matching (PNM)						
Matrices (MAT)						
Verbal-Spatial Relations (VSR)						
Figure Memory (FM)						
Expressive Attention (EA)						
Number Detection (ND)						
Receptive Attention (RA)						
Word Series (WS)						
Sentence Repetition/ Questions (SR/SQ)						
Visual Digit Span (VDS)						
		PLAN	SIM	ATT	SUC	FS
Sum of Subtest Scaled Scores		+	+	+	+	
PASS Composite Index Scores						
Percentile-Rank						
Upper						
% Confidence Interval						
Lower						

91

91

## PASS Theory: Successive

- ▶ **Successive** processing is a basic psychological process we use to manage stimuli in a specific serial order
  - Stimuli form a chain-like progression
  - Recall a series of words
  - Decoding words
  - Letter-sound correspondence
  - Phonological tasks
  - Understanding the syntax of sentences
  - Comprehension of written instructions

Recall of Numbers in Order  
Successive Processing

4 3 8 6 1

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92

92

## Successive and Syntax

### ➤ Sentence Repetition

- Child repeats sentences exactly as stated by the examiner such as:
- ***The red greened the blue with a yellow.***

### ➤ Sentence Questions

- Child answers a question about a statement made by the examiner such as the following:
- ***The red greened the blue with a yellow. Who got greened?***

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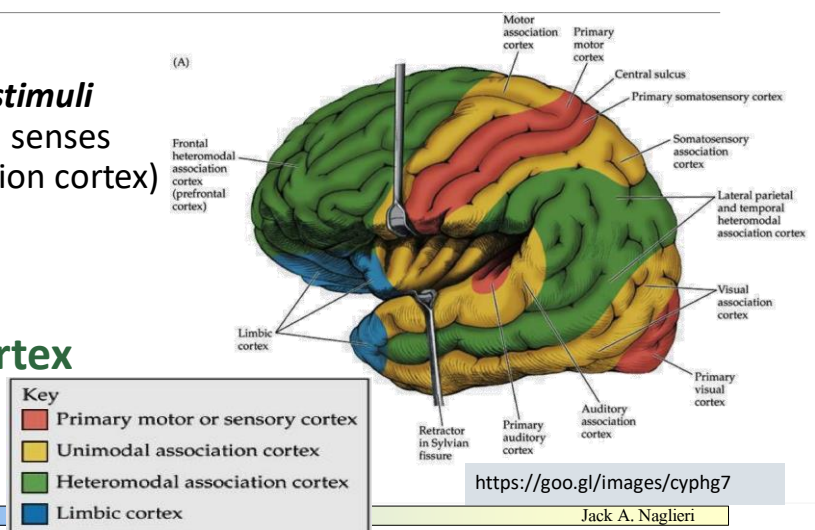
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## Heteromodal Association Cortex (Goldberg, 2006)

- Our brains ***merge stimuli*** coming in from the senses (unimodal association cortex) into one stream of information in the **Heteromodal association cortex**

- (green areas)



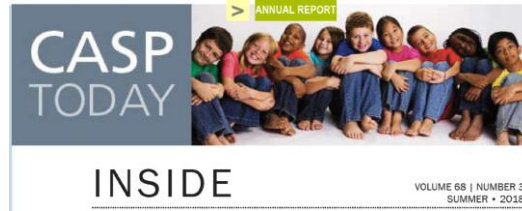
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# Discrepancy Consistency Method

- Case of Peter by Feifer & Naglieri
- 4th grade and performing below grade level in both reading and mathematics
- despite numerous interventions and classroom accommodations.
- He struggles to remember the sequence of steps when doing math
- He is inconsistent with basic math facts, struggles reading long passages and has difficulty decoding and spelling
- Peter has an outstanding memory for details of any type of learning experience

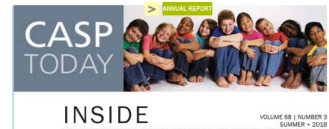


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# Discrepancy Consistency Method



- CAS2 FAR and FAM - **FREE** Analyzers on jacknaglieri.com

**CAS2 8-Subtest CORE Battery**

**BOX #1 Is there a PASS Pattern of Strengths and Weaknesses (Discrepancy 1)?**

Differences Between PASS Scale Standard Scores and the Student's Average PASS Score (p = .05) for the CAS2 CORE battery.

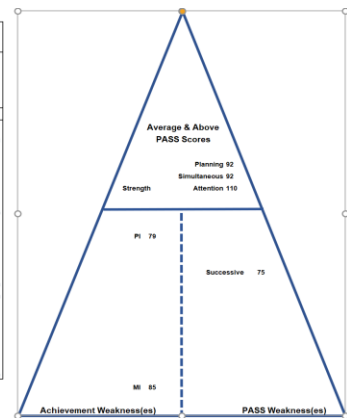
Cognitive Assessment System-2	PASS Mean & Differences:	Significantly Different (at p = .05) from PASS Mean?	Strength or Weakness
PASS Scales	Standard Score	92.3	
Planning	92	-0.3	no
Simultaneous	92	-0.3	no
Attention	110	17.8	Strength
Successful	75	-17.3	Weakness

Notes

1. A Weakness is defined as PASS standard score that is significantly below the child's average PASS score (ipsative comparison at the .05 level) and the PASS score is below 90 (i.e. below the Average range).
2. A Strength is defined as PASS standard score that is significantly above the child's average PASS score (ipsative comparison at the .05 level) and the PASS score is above 109 (i.e. above the Average range).
3. See Essentials of CAS2 Assessment Interpretation Chapter for more details and examples. Note: Comparisons at p = .05

**BOX #2 Are high PASS scores significantly different from low achievement scores (Discrepancy 2)? Are low PASS scores similar to low achievement scores (Consistency)?**

		PASS Scores from CAS2			
		Planning	Simultaneous	Attention	Successful
		92	92	110	75
<b>Feifer Assessment of READING</b>					
79	PI Phonological Index	Discrepant	Discrepant	Discrepant	Consistent
	PA Phonemic Awareness				
	MWD Nonword Word Decoding				
	WRJ Spelled Word Reading Fluency				
	ORF Oral Reading Fluency				
	PS Pseudostory Sounds				
90	FI Fluency Index				
	WRJ Spelled Subword Fluency				
	VF Verbal Fluency				
	VP Visual Perception				
	RRJ Single Word Reading Fluency				
	CRF Comprehension Fluency				
85	MI Mixed Index		Discrepant	Consistent	
90	CI Comprehension Index				
	SC Semantic Concepts				
	WRJ Word Usage				
	DK Broad Knowledge				
	MP Morphological Processing				
	WRJ Silent Reading Fluency				
	SP Spelling				
84	MP Total Index		Discrepant	Consistent	



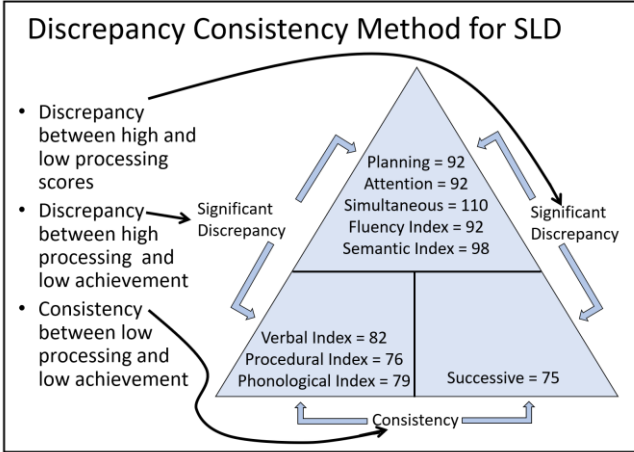
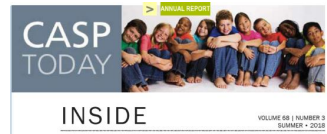
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96



# Discrepancy Consistency Method



BOX #2 Are high PASS scores significantly different from low achievement scores (Discrepancy 2)? Are low PASS scores similar to low achievement scores (Consistency)?

PASS Scores from CAS2				
	Planning	Simultaneous	Attention	Successive
	92	92	110	75

Feifer Assessment of MATH

Standard Scores				
	Discrepant	Discrepant	Discrepant	Consistent
76 P1 Procedural Index				
82 V1 Verbal Index				
98 S1 Semantic Index				
86 T1 IFAM Total Index				

BOX #2 Are high PASS scores significantly different from low achievement scores (Discrepancy 2)? Are low PASS scores similar to low achievement scores (Consistency)?

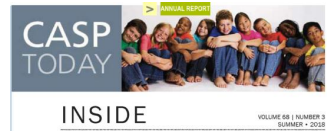
PASS Scores from CAS2				
	Planning	Simultaneous	Attention	Successive
	92	92	110	75

Feifer Assessment of READING

Standard Scores				
	Discrepant	Discrepant	Discrepant	Consistent
79 P1 Phonological Index				
92 F1 Fluency Index				
85 M1 Mixed Index				
90 C1 Comprehension Index				
84 MP Total Index				

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# Discrepancy Consistency Method



## ➤ Paul

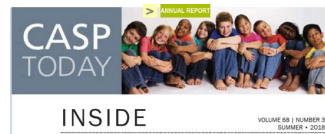
Table 1. Correspondance of Cognitive Assessment System - Second Edition Scales with Commonly Used Descriptions of Processing.

CAS2 Scales	Attention	Visual Processing	Auditory Processing	Phonological Processing	Sensory-Motor Skills	Association	Conceptualization	Expression
<b>Primary Scales</b>								
Planning		✓			✓		✓	✓
Attention	✓	✓						
Simultaneous		✓					✓	
Successive			✓	✓	✓	✓		
<b>Supplemental Scales</b>								
Executive Function			✓					
Executive Function with Working Memory			✓	✓				
Working Memory			✓	✓				
Verbal Content						✓		
Nonverbal Content							✓	
Speed/Fluency					✓			
Visual-Auditory Comparison		✓	✓					

Note: Association, conceptualization and expression are described as cognitive abilities.

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# Discrepancy Consistency Method



## ➤ Paul

Table 2. Correspondence of Feifer Assessment of Reading (FAR) Scores with Reading Skills.

FAR	Reading Comprehension	Basic Reading Skill	Reading Fluency Skills	Phonological Processing	Written Expression	Oral Expression	Listening Comprehension
<b>Phonological Index</b>		✓	✓				
Phonemic Awareness				✓			
Nonsense Word Decoding				✓			
Isolated Word Reading Fluency		✓	✓				
Oral Reading Fluency		✓	✓				
Positioning Sounds				✓			
<b>Fluency Index</b>		✓	✓				
Rapid Automatic Naming			✓				
Verbal Fluency						✓	
Visual Perception							
Irregular Word Reading Fluency		✓	✓				
Orthographical Processing							
<b>Mixed Index</b>		✓	✓				
Comprehension Index	✓		✓				
Semantic Concepts							
Word Recall							✓
Print Knowledge		✓					
Morphological Processing							
Silent Reading Fluency: Comprehension	✓		✓				

Table 3. Correspondence of Feifer Assessment of Math (FAM) Scores with Math and Reading Skills.

FAM	Listening Comprehension	Math Calculation	Math Problem Solving
<b>Procedural Index</b>		✓	✓
Forward Number Count	✓		✓
Backward Number Count	✓		✓
Numeric Capacity			
Sequences		✓	
Object Counting	✓		✓
<b>Verbal Index</b>	✓		✓
Rapid Number Naming			
Addition Fluency	✓		✓
Subtraction Fluency	✓		✓
Multiplication Fluency	✓		✓
Division Fluency	✓		✓
Linguistic Math Concepts	✓		
<b>Semantic Index</b>		✓	✓
Spatial Memory			
Equation Building	✓		✓
Perceptual Estimation			
Number Comparison		✓	
Addition Knowledge		✓	
Subtraction Knowledge		✓	
Multiplication Knowledge		✓	
Division Knowledge		✓	

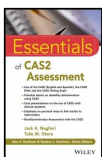
Jack A. Naglieri

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## Case of Paul: *Phonological Dyslexia* (Feifer)

- **Case of Paul** -A 9-year-old in 4<sup>th</sup> grade
  - Problems in reading and math
  - Can't remember the sequence of steps when doing math and math facts
  - Good memory for details
  - Can't sound out words
  - Poor spelling
  - Poor reading comprehension



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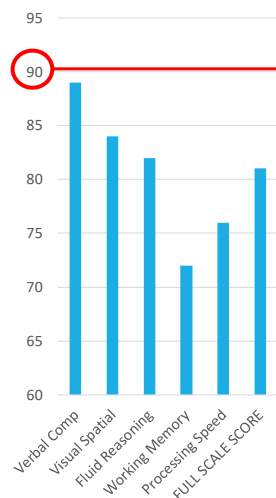
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# Paul - age 9 years

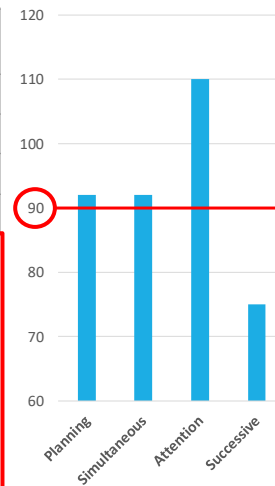
Presenting Concerns: Reading, Math Word Problems, Anxiety

WISCV	COMPOSITE SCORE	RANGE	PERCENTILE RANK
Verbal Comprehension	89	Below Average	23%
Visual Spatial	84	Below Average	14%
Fluid Reasoning	82	Below Average	12%
Working Memory	72	Very Low	3%
Processing Speed	76	Very Low	6%
FULL SCALE SCORE	81	Below Average	10%
WIAT III Reading	87	Below Average	19%
WIAT III Math	90	Average	25%
WIAT III Writing	94	Average	34%



# Paul - age 9 years

CAS-2	STANDARD SCORE	Classification
Planning	92	Average
Simultaneous	92	Average
Attention	110	Average
Successive	75	Very Low



Differences Between PASS Scale Standard Scores and the Student's Average PASS Score Required for Significance for the CAS2 12-Subtest EXTENDED battery AGES 8-18 Years.

Cognitive Assessment System - 2	Difference from PASS Mean of:		Significantly Different (at $p < .05$ ) from	Strength or Weakness
	PASS Scales	Standard Score		
Planning	92	-0.3	no	
Simultaneous	92	-0.3	no	
Attention	110	17.8	yes	Strength
Successive	75	-17.3	yes	Weakness



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

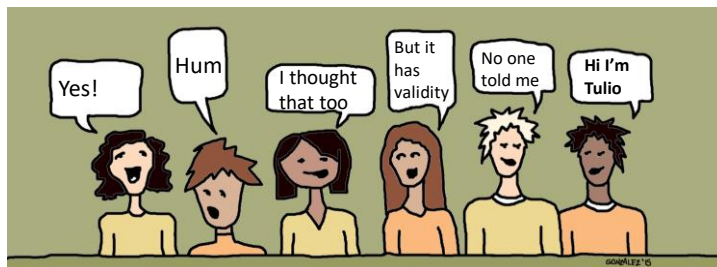
— *Maya Angelou* —

Change Demands Courage to Think Differently

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## Core Group Activity

- **QUESTION: Questions about PASS Theory?**



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# PASS → CAS2



## My Professional Journey

- An Awakening About Traditional Intelligence Tests

## A Theory Based on Brain Function

- Thinking vs Knowing and Social Justice

## From PASS to CAS2

- A Different View of People

## Research Update

- PASS and Equity – Measure Thinking not Knowing
- To *g* or not to *g*

## Administration and Interpretation Issues

- Test order, subtest interpretation, etc.

## Reasons To Change

- Validity of PASS Theory

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# PASS Comprehensive System

(Naglieri, Das, & Goldstein, 2014)

## Ways to Measure PASS

CAS2 Core & Extended English & Spanish for comprehensive Assessment  
 CAS2 Brief for re-evaluations, instructional planning, gifted screening  
 CAS2 Rating Scale for teacher ratings



CAS2 Digital (English & Spanish) coming in 2022

aglieri

# CAS2 for (Ages 5-18 yrs.)

NEW! CAS2 Digital (English and Spanish) coming in 2022 with integrated scoring and narrative report

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## CAS2 Online Score & Report

<http://www.proedinc.com/customer/ProductView.aspx?ID=7277>

- ▶ Enter data at the subtest level or enter subtest raw scores
- ▶ Online program converts raw scores to standard scores, percentiles, etc. for all scales.
- ▶ A narrative report with graphs and scores is provided

**CAS2: Online Scoring and Report System (1-Year Base Subscription)** (14311)  
 This product requires a check of customer qualifications. Click [here](#) to download qualifications form. TO ORDER, CALL: 800-897-3202.

Price: \$199.00

**NEW**

**NOW AVAILABLE!**

Ages: 5 through 18 years  
 Testing Time: 40 to 60 minutes  
 Administration: Individual

The new PC, Mac™, and iPad™ compatible CAS2 Online Scoring and Report System program is an efficient and easy way to obtain CAS2 scores and corresponding narrative.

**ORDERING OPTIONS:**

- CAS2: Online Scoring and Report System (Add-on 3-User License) **\$69.00**
- CAS2: Online Scoring and Report System (Manual Renewal) **\$69.00**

**Use CAS2 Online Scoring and Report System for:**

- converting CAS2 subtest raw scores into standard scores, percentile ranks, descriptive terms, and age equivalents;
- generating PASS and Full Scale composite scores;
- comparing CAS2 subtest and PASS scale scores to identify significant intra-individual differences;
- providing a full report of CAS2 performance; and
  - **Sample Interpretive Report**
  - **Sample Score Summary**
- providing intervention options.

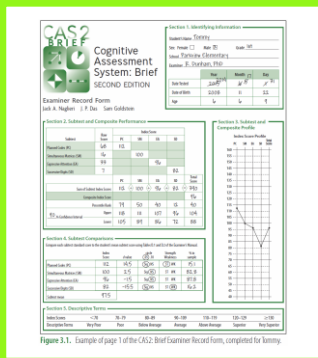
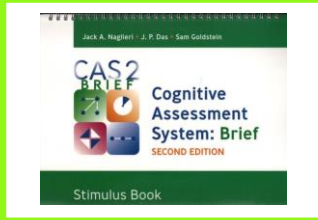
**Ordering options:**


- CAS2 Online Scoring and Report System first-time base subscription provides one-year unlimited online scoring and report access for up to 5 users.
- Annual base subscription renewal provides one-year unlimited online scoring and report access for up to 5 users.

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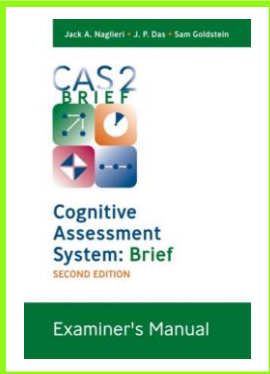
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## CAS2: Brief

- Yields PASS and Total standard scores (Mn 100, SD 15)
- Directions for administration are in the Record Form
- For Re-evaluations and Screening
- All items are different from CAS2
  - Planned Codes
  - Simultaneous Matrices
  - Expressive Attention
  - Successive Digits



## CAS2: Brief

- CAS2: Brief takes 20 minutes to administer
- It is intended to be used for instructional planning during Tier 2
- It is also used as a screening tool for a fast evaluation of PASS neurocognitive ability scores
- Also helpful for re-evaluations

CAS2: Brief Standard Scores			
Planning	Attention	Simultaneous	Successive
133	91	103	125
94	82	94	78
61	91	90	100
91	92	97	100
70	83	100	70
65	75	66	50
40	89	68	80
87	87	87	85
89	85	90	70
96	103	101	85
59	61	62	55
99	98	105	125
56	82	92	85
103	83	92	80
97	99	100	115
94	89	99	90
95	76	97	122
81	98	70	75
96	105	100	95
95	89	98	55
81	79	104	110
77	85	100	80
52	81	80	65
94	82	82	100
56	145	106	115
86	95	75	80
80	74	82	75
134	89	107	85
96	83	85	100
85	79	73	80
64	129	98	121
98	118	85	75
85	97	75	80
98	107	102	83
64	91	90	65
83	91	93	60
MN	83.8	91.2	90.2
SD	20.1	15.6	20.4

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## CAS2 Rating Scales (Ages 4-18 yrs.)

- The CAS2: Rating measures behaviors associated with PASS constructs
- Completed by teachers and can be used by psychologists, special educators and regular educators

**CAS2 Cognitive Assessment System: Rating Scale SECOND EDITION**

**Rating Form**  
Jack A. Naglieri | J. P. Das | Sam Goldstein

**Section 1: Identifying Information**

Student's Name: \_\_\_\_\_  
Sex: Female  Male  Grade: \_\_\_\_\_  
School: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
Student Title: \_\_\_\_\_  
Rate for Student for: \_\_\_\_\_ (year/month)  
Examiner's Name: \_\_\_\_\_  
Examiner's Title: \_\_\_\_\_

**Section 2: Rating Instructions and Scales**

The CAS2 Rating Scale is designed to assess classroom behavior seen by a teacher who has had at least 4 weeks of experience with the student. The behaviors are organized into four groups, which will be used to obtain scores for four different scales. Each scale contains 10 questions that are scored on the basis of how often specific behaviors were seen. The scales for each question range from never to always.

To complete the form, read each statement that follows the phrase, "During the past month, how often did the child or adolescent..." then circle the number under the word that best describes how often the behavior was seen. Read each question carefully, then mark how often the behavior was seen in the past month. Answer every question without skipping any. If you want to change your answer, put an X through it and circle your new choice. Be sure to answer every question.

Teachers should rate all items to the best of their ability, given their knowledge of the student and the student's peers. In some cases, teachers may have only indirect knowledge of the student's performance; nonetheless, the teacher should provide the best rating possible.

It is important that ratings should be based on the student's behavior regardless of the language or medium used.

**Section 3: Rating Scale Grid**

Item	Never	Seldom	Often	Always
1. How often does the child or adolescent decide how to do things to solve a problem before acting and avoid impulsivity. Please rate how well the child or adolescent does.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. How often does the child or adolescent... (the child or adolescent...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

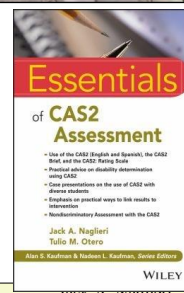
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## CAS2, CAS2 Online Score and Report Write, CAS2-Espanol, CAS2: Brief, CAS2 Rating Scale

- This book is the most complete discussion of PASS theory and its measurement
- Chapters cover all versions of the CAS2 as well as the online scoring and report writer
- Administration, scoring, interpretation
- Reliability, validity (PASS profiles, evidence of test fairness,
- Discrepancy Consistency Method for SLD
- Intervention planning and clinical case studies




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## CAS2 is Different



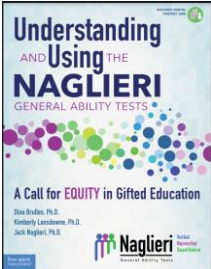
- My Professional Journey
  - An Awakening About Traditional Intelligence Tests
- A Theory Based on Brain Function
  - Thinking vs Knowing and Social Justice
- From PASS to CAS2
  - A Different View of People
- Research Update
  - PASS and Equity – Measure Thinking not Knowing
  - To *g* or not to *g*
- Administration and Interpretation Issues
  - Test order, subtest interpretation, etc.
- Reasons To Change
  - Validity of PASS Theory

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## Race and Ethnic Differences for *Traditional and Second-Generation* Ability Tests



Note: Even though traditional intelligence tests may not show psychometric bias (Worrell, 2019) the large mean score differences suggest they are unfair (Brulles, et al., 2022).

Race and Ethnic Standard Score Differences Across Intelligence Tests	By Race	By Ethnicity
<b>Tests that require knowledge</b>	<b>Mn = 11.5</b>	<b>Mn = 9.2</b>
Otis-Lennon School Ability Test (distric wide)	13.6	
Stanford-Binet IV (normative sample)	12.6	
WISC-V (normative sample)	11.6	
WJ- III (normative sample)	10.9	10.7
CogAT7 (Nonverbal scale)	11.8	7.6
WISC-V (statistical controls normative sample)	8.7	
<b>Tests that require minimal knowledge</b>	<b>Mn = 4.1</b>	<b>Mn = 2.6</b>
K-ABC (normative sample)	7.0	
K-ABC (matched samples)	6.1	
CAS-2 (normative sample)	6.3	4.5
CAS (statistical controls normative sample)	4.8	4.8
CAS-2 (statistical controls normative sample)	4.3	1.8
CAS-2 Brief (normative samples)	2.0	2.8
NNAT (matched samples)	4.2	2.8
Naglieri General Ability Test-Verbal	2.2	1.6
Naglieri General Ability Test-Nonverbal	1.0	1.1
Naglieri General Ability Test-Quantitative	3.2	1.3

Notes: The results summarized here were reported for the Otis-Lennon School Ability Test by Avant and O'Neal (1986); Stanford-Binet IV by Wasserman (2000); Woodcock-Johnson III race differences by Edwards & Oakland (2006) and ethnic differences by Sotelo- Dynega, Ortiz, Flanagan & Chaplin (2013); CogAT7 by Carman, Walther and Bartsch (2018); WISC-V by Kaufman, Raiford & Coalson (2016); Kaufman Assessment Battery for Children-II by Lichenberger, Sotelo- Dynega and Kaufman (2009); CAS by Naglieri, Rojahn, Matto & Aquilino (2005); CAS-2 and CAS2: Brief by Naglieri, Das & Goldstein, 2014; Naglieri Nonverbal Ability Test by Naglieri and Ronning (2000), and Naglieri General Ability Tests by Naglieri, Brulles and Lansdowne (2021).

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

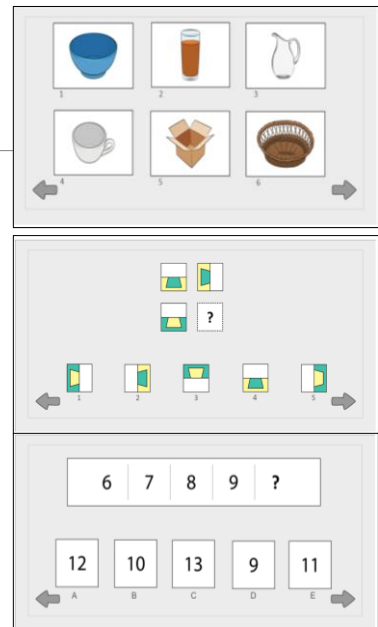
Jack A. Naglieri, Ph.D. [jnaglieri@gmail.com](mailto:jnaglieri@gmail.com)  
 Dina Brulles, Ph.D. [dbrulles@gmail.com](mailto:dbrulles@gmail.com)  
 Kim Lansdowne, Ph.D.  
[Kimberly.Lansdowne@asu.edu](mailto:Kimberly.Lansdowne@asu.edu)



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## Naglieri General Ability Tests (Naglieri & Brulles & Lansdowne, 2022)



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# Initial Research Results (2019)

Selvamenan, M., Paolozza, 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: Achieving Equity.

## • VERBAL SAMPLE

- 2,482 That closely matches the US population on key demographics

## • GENDER

- **No differences** between **males** and **females** for raw score across all forms

## • RACE/ETHNICITY

- **No differences** among **White, Black, & Hispanic** for raw score across all forms

## • PARENTAL EDUCATION LEVEL

- **No differences** among five education levels (**No high school diploma; High School graduate; Some college/Associate's degree; Bachelor's degree; Graduate/professional degree**) for raw score across all forms

## • NONVERBAL SAMPLE

- 3,630 That closely matches the US population on key demographics

## • GENDER

- **No differences** between **males** and **females** for raw score across all forms

## • RACE/ETHNICITY

- **No differences** among **White, Black, & Hispanic** for raw score across all forms

## • PARENTAL EDUCATION LEVEL

- **No differences** among five education levels (**No high school diploma; High School graduate; Some college/Associate's degree; Bachelor's degree; Graduate/professional degree**) for raw score across all forms

## ➤ QUANTITATIVE SAMPLE

- 2,841 That closely matches the US population on key demographics

## ➤ GENDER

- **No differences** between **males** and **females** for raw score across all forms

## ➤ RACE/ETHNICITY

- **No differences** among **White, Black, & Hispanic** for raw score across all forms

## ➤ PARENTAL EDUCATION LEVEL

- **No differences** among five education levels (**No high school diploma; High School graduate; Some college/Associate's degree; Bachelor's degree; Graduate/professional degree**) for raw score across all forms

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## American Psychological Association Apology

- 'APA recognizes the roles of psychology in promoting...racism, and the harms that have been inflicted on communities of color ...'
- 'Psychologists created and promoted the widespread application of psychological tests that have been used to disadvantage many communities of color'
- 'APA and its leadership failed to take action in response to calls from Black psychologists for an end to the misuse of tests developed by psychologists that perpetuated racial inequality... and the ways measurement of intelligence has been systemically used to create the ideology of White supremacy'

APA apologizes to communities of color for longstanding contributions to systemic racism. [Read more](#)

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Home / About APA / **CRISIS Policy Manual / Apology to People of Color for APA**

### Apology to People of Color for APA's Role in Promoting, Perpetuating, and Failing to Challenge Racism, Racial Discrimination, and Human Hierarchy in U.S.

Resolution adopted by the APA Council of Representatives on October 29, 2021

The American Psychological Association failed in its role leading the discipline of psychology, was complicit in contributing to systemic inequalities, and hurt many through racism, racial discrimination, and denigration of people of color, thereby falling short on its mission to benefit society and improve lives. APA is profoundly sorry, accepts responsibility for, and owns the actions and inactions of APA itself, the discipline of psychology, and individual psychologists who stood as leaders for the organization and field.

The governing body within APA should have apologized to people of color before today. APA, and many in psychology, have long considered such an apology, but failed to accept responsibility. APA previously engaged in unsuccessful efforts to issue apologies in the past, including an apology to Indigenous peoples. The work done to make this apology to people of color a reality was led by the people and voices of a broad cross-section of today's APA—members, APA's elected and appointed leaders, and staff—in a shared commitment to not only truly assess the harms and the harmed, but also to take responsibility and commit to taking those collective learnings and direct them into an apology that will affect true change. It is informed by listening with intention to the voices of the past—as outlined in a stunning chronology of psychology's history—and especially informed by the voices of today, the lived experience of psychologists of color, Ethnic Psychological Associations, and those who serve people of color.

APA Council of Representatives resolutions

- Apology to People of Color for APA's Role in Promoting, Perpetuating, and Failing to Challenge Racism, Racial Discrimination, and Human Hierarchy in U.S.
- Role of Psychology and APA in Dismantling Systemic Racism Against People of Color in U.S.
- Advancing Health Equity in Psychology

More information

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# IQ Tests Role in Promoting Racism

- Lewis Terman – promoter of eugenics (Greek for good birth) and author of the Stanford-Binet (1916) wrote that his test would reveal “significant racial differences in general intelligence...which cannot be wiped out by any culture” and that identification of low-intelligence children and adults who would be involuntarily institutionalized and sterilized... would improve society. (p. 68, Brookwood, 2021)

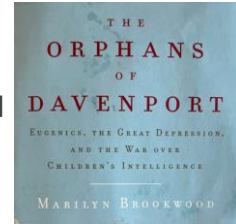


TABLE II

DISTRIBUTION OF INTELLIGENCE QUOTIENTS BY RACIAL STOCK

RACIAL DIFFERENCES IN THE INTELLIGENCE OF SCHOOL CHILDREN

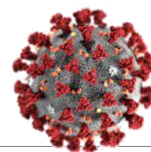
BY FLORENCE L. GOODENOUGH  
*Institute of Child Welfare, University of Minnesota*

IQ	American	Armenian	Italian	Spanish-Mexican	California Negroes	Southern Negroes	Hopa V. Indians	Jewish	Chinese	Japanese	German	Portuguese	English and Scotch	French and Swiss	Danish, Swedish and Norwegian	Scandinavian and Serbian
Total cases . . . . .	500	123	456	367	69	613	79	55	25	42	29	11	14	14	31	29
Mdn. . . . .	100.3	91.8	87.5	87.2	82.7	76.5	85.6	106.3	103.1	99.5	98.8	93.3	99.5	92.8	104.5	94.5
Mean . . . . .	101.5	92.3	89.1	88.5	85.8	78.7	85.6	106.1	104.1	101.9	101.1	94.5	100.2	94.5	103.5	92.8
S.D. . . . .	18.3	15.6	16.0	17.5	18.7	17.5	14.1	16.2	18.0	18.0	19.3	16.5	16.8	19.6	17.8	18.8
Coeff. of var. . . . .	18.0	16.9	18.0	19.8	21.8	22.2	16.5	15.3	17.2	17.7	19.1	17.5	16.8	20.7	17.2	20.3

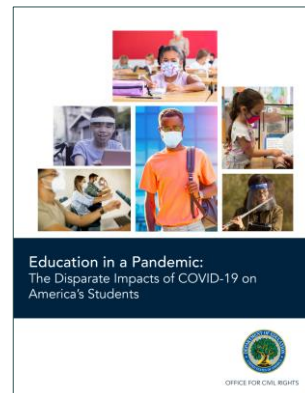
## Equitable Intellectual Assessment

- The summary of research on race and ethnic differences illustrates:
- how the field of intellectual assessment has **incorrectly** influenced our understanding of the intelligence of **PEOPLE**;
- when the research was really a reflection of the content of the **TESTS**

# Academic Learning Loss & COVID



- COVID-19 has deepened the impact of disparities in access and opportunity for students of color
- Students of color are even further behind than they were before the pandemic
- ELL students had the dual challenge of learning content and English.
- These students' **intellectual scores on traditional tests** will reflect that larger learning gap related to COVID



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

JACK A. NAGLIERI

## Illinois School District U-46

**CAUTION !**

Does an Equitable Test Always Solve the Problem?

The district with 42% Hispanics but only 2% of students in gifted were Hispanic.

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, )	
)	No. 05 C 0760
Plaintiffs, )	Judge Robert W. Gettleman
v. )	
BOARD OF EDUCATION FOR ILLINOIS )	
SCHOOL DISTRICT U-46, )	
Defendant. )	

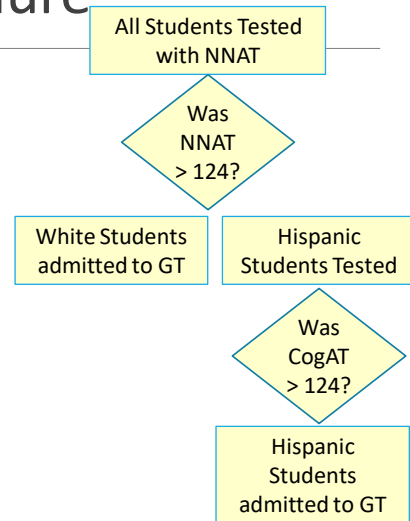
On July 11, 2013, Judge Robert Gettleman issued a decision holding that District U-46 intentionally discriminated against Hispanic students specific in their gifted programming (placement), and found problems with policies and instruments for

screening and identification, (c) use of both verbal and math scores at arbitrary designated levels for screening and for identification, (d) use of weighted matrix, as well as content and criteria in weighted matrices that favored achievement and traditional measures, (e) too little reliance on a nonverbal test (Naglieri Nonverbal Ability Test) for admission to

Jack A. Naglieri

## U-46 Identification Procedure

- Universal testing – ALL students given the Naglieri Nonverbal Ability Test (NNAT2).
- The white students with sufficiently high scores are identified and placed in gifted programs
- The Hispanic students with sufficiently high scores were then administered the CogAT and they were placed in the gifted program **only** if they had equally high scores



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### CAUTION!

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

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

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



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### PASS Scores for Hispanics

Naglieri, Rojahn, Matto (2007)

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

Intelligence 35 (2007) 568–579

INTELLIGENCE

Hispanic and non-Hispanic children’s performance on PASS cognitive processes and achievement<sup>27</sup>

Jack A. Naglieri<sup>a,\*</sup>, Johannes Rojahn<sup>a</sup>, Holly C. Matto<sup>b</sup>

<sup>a</sup> Center for Cognitive Development, George Mason University, Department of Psychology, MSF 2C6, United States  
<sup>b</sup> Virginia Commonwealth University, United States

Received 16 May 2006; received in revised form 6 November 2006; accepted 6 November 2006  
Available online 8 January 2007

**Abstract**

Hispanics have become the largest minority group in the United States. Hispanic children typically come from working class homes with parents who have limited English language skills and educational training. This presents challenges to psychologists who assess these children using traditional IQ tests because of the considerable verbal and academic (e.g., quantitative) content. Some researchers have suggested that intelligence conceptualized on the basis of psychological processes may have utility for assessment of children from culturally and linguistically diverse populations because verbal and quantitative skills are not included. This study examined Hispanic children’s performance on the Cognitive Assessment System (CAS; [Naglieri, J.A., and Das, J.P. (1997). Cognitive Assessment System. Itasca, IL: Riverside.] which is based on the Planning, Attention, Simultaneous, and Successive (PASS) theory of intelligence. The scores of Hispanic children (N=1956) on the four PASS components and the total score were compared to scores of White children (N=1956) on the four PASS components and the total score. Hispanic children performed significantly lower than White children on all four PASS components and the total score. The difference was largest on the verbal component (11.75 vs. 11.57) and smallest on the spatial relations component (9.17 vs. 9.23). Small differences

Hispanic White difference on CAS Full Scale of **4.8**

### WJ-III and ELL Hispanic Students

(Sotelo-Dynerga, Ortiz, Flanagan & Chaplin, 2013)

WJ III Test	Sample		WJ III Sample		Difference	t	d
	M	SD	M	SD			
General Intellectual Ability	89.34	11.78	100	15	-10.64	-7.07**	-.90
Verbal Comprehension	80.38	14.09	100	15	-19.62	-10.87***	-1.40
Concept Formation	87.16	12.20	100	15	-12.84	-8.22***	-1.05
Numbers Reversed	95.23	12.46	100	15	-4.77	-2.96*	-0.38
Visual-Auditory Learning	95.62	14.56	100	15	-4.38	-2.35*	-0.30
Sound Blending	97.82	11.57	100	15	-2.18	-1.47	-0.19
Visual Matching	96.89	11.57	100	15	-1.07	-0.85	-0.11
Spatial Relations	96.89	11.57	100	15	-0.82	-0.758	-0.10

\*p < .05. \*\*p < .01. \*\*\*p < .001.

NYSESLAT Proficiency Group	Sample		WJ III Sample	
	M	SD	M	SD
Beginner	71.75	3.98	100	15
Intermediate	82.29	8.66	100	15
Advanced	89.55	9.17	100	15
Proficient	101	9.23	100	15

\*p < .001.

11-point mean score difference in GIA

As English skills go down so does the GIA

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# PASS scores – English and Spanish

## Bilingual Hispanic Children's Performance on the English and Spanish Versions of the Cognitive Assessment System

Jack A. Naglieri  
George Mason University

Tulio Otero  
Columbia College, Elgin Campus

Brianna DeLauder  
George Mason University

Holly Matto  
Virginia Commonwealth University

School Psychology Quarterly  
2007, Vol. 22, No. 3, 432-448



This study compared the performance of referred bilingual Hispanic children on the Planning, Attention, Simultaneous, Successive (PASS) theory as measured by English and Spanish versions of the Cognitive Assessment System (CAS; Naglieri & Das, 1997a). The results suggest that students scored similarly on both English and Spanish versions of the CAS. Within each version of the CAS, the bilingual children earned their lowest scores in Successive processing regardless of the language used. No significant differences were noted between the Simultaneous and Successive processing scores. Specific subtests were found to contribute to differences between the English and Spanish versions of the CAS. Comparisons on both versions of the CAS revealed that the sixty-two children with the lowest scores on the English version of the CAS also had the lowest scores on the Spanish version of the CAS.

Keywords: bilingual assessment, cognitive assessment, non-biased assessment

APPLIED NEUROPSYCHOLOGY: CHILD, 0: 1-9, 2012  
Copyright © Taylor & Francis Group, LLC  
ISSN: 2162-2965 print/2162-2973 online  
DOI: 10.1080/21622965.2012.670547

Psychology Press  
Taylor & Francis Group

## The Neurocognitive Assessment of Hispanic English-Language Learners With Reading Failure

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Chicago, Illinois

Lauren Gonzales  
George Mason University, Fairfax, Virginia

Jack A. Naglieri  
University of Virginia, Fairfax, Virginia

This study examined the performance of referred Hispanic English-language learners (N = 40) on the English and Spanish versions of the Cognitive Assessment System (CAS; Naglieri & Das, 1997). The CAS measures basic neuropsychological processes based on the Planning, Attention, Simultaneous, and Successive (PASS) theory (Naglieri & Das, 1997). The results suggest that students scored similarly on both English and Spanish versions of the CAS. Within each version of the CAS, the bilingual children earned their lowest scores in Successive processing regardless of the language used. No significant differences were noted between the Simultaneous and Successive processing scores. Specific subtests were found to contribute to differences between the English and Spanish versions of the CAS. Comparisons on both versions of the CAS revealed that the sixty-two children with the lowest scores on the English version of the CAS also had the lowest scores on the Spanish version of the CAS.

Very similar scores in English and Spanish versions of CAS  
>90% agreement between PASS weakness & strengths using English and Spanish CAS in BOTH studies

# CAS in Italy

Using US norms, Italian sample (N = 809) CAS Full Scale was 100.9 and matched US sample (N = 1,174) was 100.5 and factorial invariance was found



Psychological Assessment © 2012 American Psychological Association  
1040-3590/12/\$12.00 DOI: 10.1037/a0029828

## Multigroup Confirmatory Factor Analysis of U.S. and Italian Children's Performance on the PASS Theory of Intelligence as Measured by the Cognitive Assessment System

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University of Virginia and Devereux Center for Resilient Children

Stefano Taddei  
University of Florence

Kevin Williams  
Multi-Health Services, Toronto, Ontario, Canada

This study examined Italian and U.S. children's performance on the English and Italian versions, respectively, of the Cognitive Assessment System (CAS; Naglieri & Conway, 2009; Naglieri & Das, 1997), a test based on a neurocognitive theory of intelligence entitled PASS (Planning, Attention, Simultaneous, and Successive; Naglieri & Das, 1997; Naglieri & Otero, 2011). CAS subtest, PASS scales, and Full Scale scores for Italian (N = 809) and U.S. (N = 1,174) samples, matched by age and gender, were examined. Multigroup confirmatory factor analysis results supported the configural invariance of the CAS factor structure between Italians and Americans for the 5- to 7-year-old (root-mean-square error of approximation [RMSEA] = .038; 90% confidence interval [CI] = .033, .043; comparative fit index [CFI] = .96) and 8- to 18-year-old (RMSEA = .036; 90% CI = .028, .043; CFI = .97) age groups. The Full Scale standard scores (using the U.S. norms) for the Italian (100.9) and U.S. (100.5) samples were nearly identical. The scores between the samples for the PASS scales were very similar, except for the Attention Scale (d = 0.26), where the Italian sample's mean score was slightly higher. Negligible mean differences were found for 9 of the 13 subtest scores, 3 showed small d-ratios (2 in favor of the Italian sample), and 1 was large (in favor of the U.S. sample), but some differences in subtest variances were found. These findings suggest that the PASS theory, as measured by CAS, yields similar mean scores and showed factorial invariance for these samples of Italian and American children, who differ on cultural and linguistic characteristics.

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# Measuring Thinking using CAS

- **White** children earned similar scores on the Verbal and Performance scales
- **Black** children earned lower VIQ than PIQ scores due to language / achievement tasks → low Full Scale
- **Black** children earned **higher** Full Scale scores on CAS than whites
- **Fewer** Black children would be identified as having intellectual disability based on Full Scale scores using CAS than WISC-III
- **THIS IS A SOCIAL JUSTICE ISSUE.**

*American Journal on Mental Retardation, 2001, Vol. 106, No. 4, 359-367*

## Intellectual Classification of Black and White Children in Special Education Programs Using the WISC-III and the Cognitive Assessment System

**Jack A. Naglieri**  
George Mason University

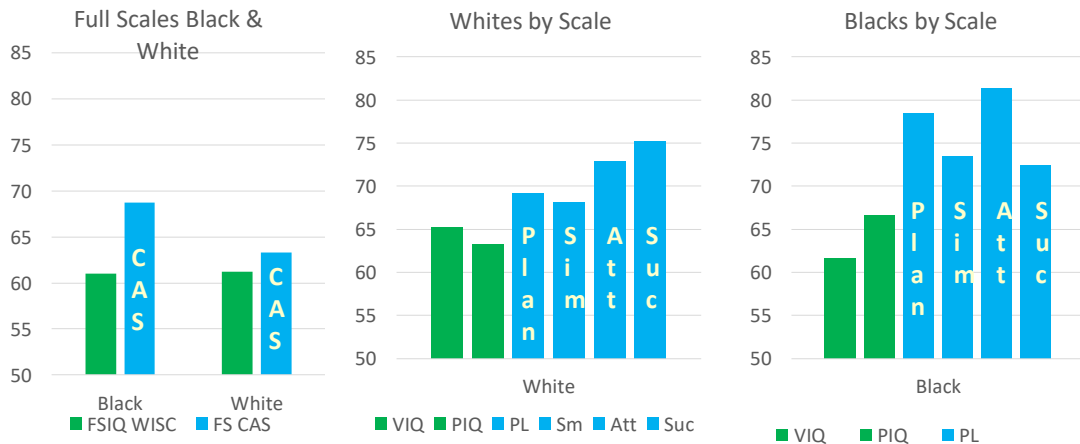
**Johannes Rojahn**  
The Ohio State University

Jack A. Naglieri

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# Measuring Thinking using CAS



Jack A. Naglieri

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# California



September 11, 2017

## IT'S TIME TO BURY LARRY<sup>4</sup> USE NONTRADITIONAL OPTIONS TO ASSESS OUR AFRICAN-AMERICAN STUDENTS

The U.S. District Court opined nearly 40 years ago that standardized IQ tests used to classify African American students into Intellectually Disabled programs were culturally biased. The Court banned the use of IQ tests for the placement of African-American children. Since that decision, the ban was expanded to prohibit the administration of IQ tests to African-American students in California public schools for any special education purpose.

With excellent research, our understanding of the brain's functioning has developed significantly since 1979. Dr. Jack Naglieri has developed a new methodology of testing and created the Cognitive Assessment System 2, a nontraditional cognitive assessment focused on measuring a student's executive functioning. Dr. Naglieri explained the difference between an IQ test and a nontraditional cognitive assessment: an IQ test measures knowledge; a cognitive assessment measures ability.

This very difference - that the CAS2<sup>5</sup> is not reliant on knowledge and the IQ - is the reason these nontraditional tests are acceptable for assessing any student. The CAS2 correlates stronger to a student's cognitive ability than the IQ test, although it omits the achievement component. Moreover, the CAS2 identifies cognitive processing weaknesses with greater clarity than almost any other assessment tool.

District may consider. (A list is available following the link in footnote 4.)

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Many of you may already be familiar with the CAS1. Use of the CAS1 with an African-American student was successfully defended by our office before the Office of Administration ("OAH")<sup>4</sup>. Further in 2006, the Special Education Department of the California Department of Education presented a list of acceptable tests for African-American children and the CAS1 was included<sup>5</sup>. While the CAS2 is similar to the CAS1, the CAS2 provides an even more accurate picture with minorities.

Since *Larry P.* was decided we can more accurately assess cognitive ability. When educators are developing educational programming for students, a more comprehensive and accurate picture of the student will lead to more successful Individualized Education Programs. In lieu of indirect assessment through interviews and surveys about the student, we recommend using the CAS2 or other similar options. If you would like a list of similar options, one is available in footnote 4 or you may contact our office.

If you need any further assistance or advice, please feel free to contact our office.

- STEPHANIE VIRREY GUTCHER

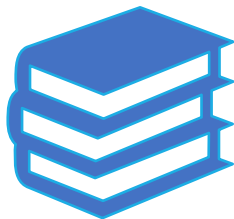
Education Law Updates are intended to alert clients to developments in legislation, opinions of courts and administrative bodies and related matters. They are not intended as legal advice in any specific situation. Please consult legal counsel as to how the issue presented may affect your particular circumstances.

<sup>4</sup> *Kerr High v. Student*, OAH Case Number 2014031002. In this particular instance, OAH approved the use of certain pieces of the CAS1. However, piecemealing is not legally defensible without a justified basis, and is no longer necessary.

<sup>5</sup> *Holly Evans-Pomgett and Bernard Yalkin of the California Department of Education, Reinstating Larry P. v. Riles - A CAS1 Corroboration 2006 Report* (PDF; Outside Source), February 2006. [http://www.cde.state.ca.us/cas1/56\\_15.asp](http://www.cde.state.ca.us/cas1/56_15.asp)

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**JACK A. NAGLIERI**



# Research on Interpretation of Test Scores and PSW



Journal Information  
Journal TOC

PsyARTICLES: Journal Article

Structural validity of the Wechsler Intelligence Scale for Children–Fifth Edition: Confirmatory factor analyses with the 16 primary and secondary subtests.

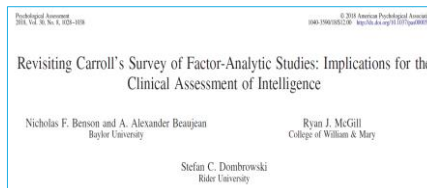
© Request Permissions

Canivez, Gary L., Watkins, Marley W., Dombrowski, Stefan C.

Canivez, G. L., Watkins, M. W., & Dombrowski, S. C. (2017). Structural validity of the Wechsler Intelligence Scale for Children–Fifth Edition: Confirmatory factor analyses with the 16 primary and secondary subtests. *Psychological Assessment*, 29(4), 458–472. <https://doi.org/10.1037/pas0000358>

- ...The small portions of variance uniquely captured by [subtests]... render the group factors [scales] of questionable interpretive value independent of g (FSIQ general intelligence)
- Present CFA results confirm the EFA results (Canivez, Watkins, & Dombrowski, 2015); Dombrowski, Canivez, Watkins, & Beaujean (2015); and Canivez, Dombrowski, & Watkins (2015).

## Support for ‘g’



- The results of this study indicate that most **cognitive abilities specified in John Carroll's three-stratum theory have little-to-no interpretive relevance above and beyond that of general intelligence.**

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## Research Supports ‘g’ but little More

Benson, N. F., Beaujean, A. A., McGill, R. J., & Dombrowski, S. C. (2018). Revisiting **Carroll's Survey of Factor-Analytic Studies**: Implications for the Clinical Assessment of Intelligence. *Psychological Assessment*, 30, 8, 1028–1038.

Canivez, G. L., Watkins, M. W., & Dombrowski, S. C. (2017). Structural validity of the **Wechsler Intelligence Scale for Children–Fifth Edition**: Confirmatory factor analyses with the 16 primary and secondary subtests. *Psychological Assessment*, 29, 458–472.

Canivez, G. L., & McGill, R. J. (2016). Factor structure of the **Differential Ability Scales–Second Edition**: Exploratory and hierarchical factor analyses with the core subtests. *Psychological Assessment*, 28, 1475–1488. <http://dx.doi.org/10.1037/pas0000279>

Canivez, G. L., & McGill, R. J. (2016). Factor structure of the **Differential Ability Scales–Second Edition**: Exploratory and hierarchical factor analyses with the core subtests. *Psychological Assessment*, 28, 1475–1488. <https://doi.org/10.1037/pas0000279>

Canivez, G. L. (2008). Orthogonal higher order factor structure of the **Stanford-Binet Intelligence Scales–Fifth Edition** for children and adolescents. *School Psychology Quarterly*, 23, 533–541.

Dombrowski, S. C., **Canivez, G. L.**, & Watkins, M. W. (2017, May). Factor structure of the 10 **WISC–V** primary subtests across four standardization age groups. *Contemporary School Psychology*. Advance online publication.

Dombrowski, S. C., McGill, R. J., & Canivez, G. L. (2017). Exploratory and hierarchical factor analysis of the **WJ IV Cognitive** at school age. *Psychological Assessment*, 29, 394–407.

McGill, R. J., & **Canivez, G. L.** (2017, October). Confirmatory factor analyses of the **WISC–IV Spanish** core and supplemental Subtests: Validation evidence of the Wechsler and CHC models. *International Journal of School and Educational Psychology*. Advance online publication.

Watkins, M. W., Dombrowski, S. C., & **Canivez, G. L.** (2017, October). Reliability and factorial validity of the **Canadian Wechsler Intelligence Scale for Children–Fifth Edition**. *International Journal of School and Educational Psychology*.

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## Hierarchical Factor Structure of the Cognitive Assessment System: Variance Partitions From the Schmid–Leiman (1957) Procedure

Gary L. Canivez  
Eastern Illinois University

Orthogonal higher-order factor structure of the Cognitive Assessment System (CAS; Naglieri & Das, 1997a) for the 5–7 and 8–17 age groups in the CAS standardization sample is reported. Following the same procedure as recent studies of other prominent intelligence tests (Dombrowski, Watkins, & Brogan, 2009; Canivez, 2008; Canivez & Watkins, 2010a, 2010b; Nelson & Canivez, 2011; Nelson, Canivez, Lindstrom, & Hatt, 2007; Watkins, 2006; Watkins, Wilson, Kotz, Carbone, & Babula, 2006), three- and four-factor CAS exploratory factor extractions were analyzed with the Schmid and Leiman (1957) procedure using MacOrtho (Watkins, 2004) to assess the hierarchical factor structure by sequentially partitioning variance to the second- and first-order dimensions as recommended by Carroll (1993, 1995). Results showed that greater portions of total and common variance were accounted for by the second-order, global factor, but compared to other tests of intelligence CAS subtests measured less second-order variance and greater first-order Planning, Attention, Simultaneous, and Successive (PASS) factor variance.

**Keywords:** CAS, construct validity, hierarchical exploratory factor analysis, Schmid–Leiman higher-order analysis, structural validity

## Support for PASS Scales

- “...compared to the WISC–IV, WAIS–IV, SB–5, RIAS, WASI, and WRIT, 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)

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## PASS



- Given that PASS scales CAN be interpreted it is important to know
  - if these scales yield PROFILES that can be used in a Pattern of Strengths and Weaknesses approach to eligibility determination AND
  - do PASS scores relate to achievement more than traditional intelligence tests?

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# Summaries of Research on Pattern of Strengths & Weaknesses of Scales from Several Intelligence Tests

**OVERVIEW 39**

**DETECTING LEARNING PROBLEMS**

All intelligence tests give a Full Scale score that is composed of scales that in turn are composed of subtests. The analysis of subtest and scale variation on ability tests is a method called *profile analysis*, which has been advocated by Kaufman (1994) and others (e.g., Sattler, 1988) to identify strengths and weaknesses that may underlie a learning disability. Information about strengths and weaknesses has been used to generate hypotheses that are integrated with other information so that decisions can be made regarding eligibility, diagnosis, and treatment. Despite the widespread use of this method, some have argued that subtest profile analysis does not provide useful information beyond that which is obtained from the IQ scores (e.g., Dombrowski & Watkins, 2013; McDermott, Farnuzzo, & Glaninger, 1990). Naglieri (1999) proposed that subtest analysis is problematic because of limitations in subtest reliability and validity and suggested that profile analysis of scales could be more effective. Theoretically derived scales could be helpful if the ability test shows a specific pattern for a specific group of exceptional students, which in turn could have implications for understanding the cognitive characteristics of the group, allow for guidance during the digitality process (see Naglieri, 2011a, 2012) and guide interventions (Naglieri & Pickering, 2010).

Naglieri (2011a) summarized research about students with reading decoding failure and ADHD reported in the technical manual for the Wechsler Intelligence Edition (WISC-IV; Wechsler, 2003) technical manual, on III Tests of Cognitive Abilities (WJ-III; Woodcock, Mathor, and Strang (2009), and CAS data from Naglieri, Otero, et al. (2007). For students with autism data were obtained for the WISC-IV (Wechsler, 2003), Naglieri, 2011), WJ-III (from Wendling et al., 2009), and CAS (from Wendling et al., 2009), technical manual). The findings should be considered with caution because the data were not matched on demographic variables across groups of the diagnosis may not have been verified, test scores were small. Notwithstanding these limitations, the data provide insights into the extent to which these various tests yield profiles that are distinctive, theoretically logical, and practical.

Summary of scale profiles for the measures provided in one of these tests yield profiles that are more distinctive for groups of exceptional children. The scores across all students with specific reading decoding difficulties were, and all of the KABC-II scores were in the 80s. The

**Essentials of CAS2 Assessment**

Jack A. Naglieri  
Talia M. Olters

WILEY

**CHAPTER 1**

**PSYCHOLOGICAL ASSESSMENT BY SCHOOL PSYCHOLOGISTS: OPPORTUNITIES AND CHALLENGES OF A CHANGING LANDSCAPE**

Jack A. Naglieri

The reliability and validity of information obtained from any psychological test is dependent on the scope and psychometric attributes of the instrument used. As in all areas of science, what psychologists discover depends on the quality of the instruments used and the methods of analysis employed. This chapter reviews the current state of the field and the apparent strengths and weaknesses of the various options.

**INTELLIGENCE AND SPECIFIC LEARNING DISABILITIES**

Contemporary is not new to the construct of intelligence and its measurement (see Jensen, 1988). Arguments have raged about the nature of intelligence—in it one factor or multiple factors, are intelligence tests based or not, what are the best ways to interpret test results, do children with specific disabilities have distinctive ability profiles, and do intelligence test scores have relevance beyond diagnostic classification in school psychological practice, as described by the National Association of School Psychologists (2010). The goal of this chapter is not to summarize all the changes that have recently occurred or to predict the future, but to provide a context for the current state of the field and the apparent strengths and weaknesses of the various options.

**A Handbook of Testing and Assessment in Psychology**

WILEY

**CHAPTER 6**

**Assessment of Cognitive and Neuropsychological Processes**

JACK A. NAGLIERI  
SAM GOLDSTEIN

**Learning and Attention Disorders in Adolescence and Adulthood**

Assessment and Treatment

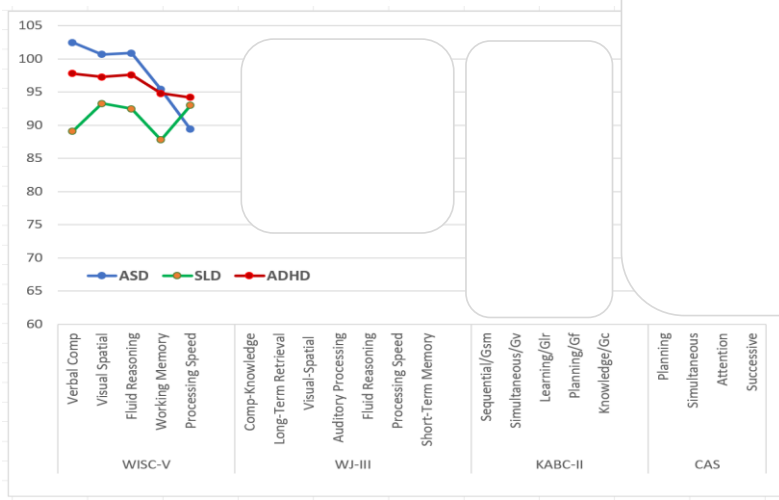
SAM GOLDSTEIN · JACK A. NAGLIERI · MELISSA DAVIES

are able in the process of determining if an individual has a Specific Learning Disorder as an important reference point to compare an individual's performance to that of peers. It is used to rule out other disabilities that intelligence tests have and will continue to determine assessment needed to determine and ADHD. Their importance, however, strengths and limitations of these tests of their effectiveness, and an examination of the goal of this chapter is to address the need for additional IQ tests with specific diagnostic. In order to achieve this goal, the history and definitions of intelligence intelligence more clearly. Emphasis will be on how intelligence is conceptualized and how this has for assessment. The chapter most of basic psychological processes and diagnostic process and treatment of adolescents

Jack A. Naglieri

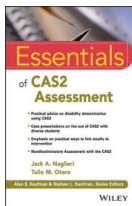
## Patterns of Strengths & Weaknesses

These profiles across tests is very revealing - PASS works



## Correlation with Achievement: We can do better!

Average correlations between IQ Scales with total achievement scores from *Essentials of CAS2 Assessment* Naglieri & Otero (2017)



Correlations Between Ability and Achievement Test Scores			Average Correlation	
			All Scales	Scales without achievement
WISC-V N = 201	Verbal Comprehension	.74	.53	.47
	Visual Spatial	.46		
	Fluid Reasoning	.40		
	Working Memory	.63		
	Processing Speed	.34		
WJ-IV COG N = 825	Comprehension Knowledge	.50	.54	.50
	Fluid Reasoning	.71		
	Auditory Processing	.52		
	Short Term Working Memory	.55		
	Cognitive Processing Speed	.55		
	Long-Term Retrieval	.43		
KABC N = 167	Sequential/Gsm	.43	.53	.48
	Simultaneous/Gv	.41		
	Learning/Glr	.50		
	Planning/Gf	.59		
	Knowledge/GC	.70		
CAS N=1,600	Planning	.57	.59	
	Simultaneous	.67		
	Attention	.50		
	Successive	.60		

Note: WJ-IV Scales Comp-Know= Vocabulary and General Information; Fluid Reasoning = Number Series and Concept Formation; Auditory Processing = Phonological processing.

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## PASS Research

- “The results clearly show that when CAS Full Scale is used it correlates **.60 with reading** and **.61 with mathematics**.”
- “These 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 ... **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...”

Intelligence 79 (2020) 101431

Contents lists available at ScienceDirect

Intelligence

journal homepage: [www.elsevier.com/locate/intel](http://www.elsevier.com/locate/intel)

PASS theory of intelligence and academic achievement: A meta-analytic review

George K. Georgiou<sup>a,\*</sup>, Kan Guo<sup>b,c,d</sup>, Nithya Naveenkumar<sup>a</sup>, Ana Paula Alves Vieira<sup>a</sup>, J.P. Das<sup>a</sup>

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ABSTRACT

Although Planning, Attention, Simultaneous and Successive (PASS) processing theory of intelligence has been argued to offer an alternative look at intelligence and PASS processes – operationalized with the Cognitive Assessment System – have been used in several studies, it remains unclear how well the PASS processes relate to academic achievement. Thus, this study aimed to determine their association by conducting a meta-analysis. A random-effects model analysis of data from 62 studies with 93 independent samples revealed a moderate-to-strong relation between PASS processes and reading,  $r = 0.409$ , 95% CI = [0.363, 0.454], and mathematics,  $r = 0.461$ , CI = [0.405, 0.517]. Moderator analyses further showed that (1) PASS processes were more strongly related with reading and math in English than in other languages, (2) Simultaneous processing was more strongly related to math accuracy and problem solving than math fluency, (3) Simultaneous processing was more strongly related to problem solving than Attention, and (4) Planning was more strongly related to math fluency than Simultaneous processing. Age, grade level, and sample characteristics did not influence the size of the correlations. Taken together, these findings suggest that PASS cognitive processes are significant correlates of academic achievement, but their relation may be affected by the language in which the study is conducted and the type of mathematics outcome. They further support the use of intervention programs that stem from PASS theory for the enhancement of reading and mathematics skills.

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*.

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## Research on PASS Profiles

Students receiving special education were more than four times as likely to have at least one PASS weakness and a comparable academic weakness than those in regular education

### Identifying Students With Learning Disabilities: Composite Profile Analysis Using the Cognitive Assessment System

Leesa V. Huang<sup>1</sup>, Achilles N. Bardos<sup>2</sup>, and Rik Carl D'Amato<sup>1</sup>

#### Abstract

The detection of cognitive patterns in children with learning disabilities (LD) has been a priority in the identification process. Subtest profile analysis from traditional cognitive assessment has drawn sharp criticism for inaccurate identification and weak connections to educational planning. Therefore, the purpose of this study is to use a new generation of cognitive tests with megaculter analysis to augment diagnosis and the instructional process. The Cognitive Assessment System uses a contemporary theoretical model in which composite scores, instead of subtest scores, are used for profile analysis. Ten core profiles from a regular education sample ( $N = 1,692$ ) and 12 profiles from a sample of students with LD ( $N = 367$ ) were found. The results of the LD and reg-

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### Can Profile Analysis of Ability Test Scores Work? An Illustration using the PASS Theory and CAS with an Unselected Cohort

Jack A. Naglieri  
George Mason University

A new approach to ipsative, or intraindividual, analysis of children's profiles on a test of ability was studied. The Planning, Attention, Simultaneous, and Successive (PASS) processes measured by the Cognitive Assessment System were used to illustrate how profile analysis could be accomplished. Three methods were used to examine the PASS profiles for a nationally representative sample of 1,597 children from ages 5 through 17 years. This sample included children in both regular ( $n = 1,453$ ) and special ( $n = 144$ ) educational settings. Children with significant ipsatized PASS scores, called Relative

“Ten core profiles from a regular education sample ( $N = 1,692$ ) and 12 profiles from a sample of students with LD ( $N = 367$ ) were found.

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## Research on PASS Profiles

- “the CAS...yields information that contributes to the differential diagnosis of students suspected of having a **learning disability in writing**”

### Cognitive Assessment System Construct and Diagnostic Utility in Assessing ADHD

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Eastern Illinois University

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Puyallup School District, Puyallup, WA

Paper presented at the 2010 Annual Convention of the American Psychological Association, San Diego, CA

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Journal of Psychoeducational Assessment  
2005, 21, 180-195

### DISCRIMINANT VALIDITY OF THE COGNITIVE ASSESSMENT SYSTEM FOR STUDENTS WITH WRITTEN EXPRESSION DISABILITIES

Judy A. Johnson  
University of Houston - Victoria  
Achilles N. Bardos  
University of Northern Colorado  
Kandi A. Tayebi  
Sam Houston State University

This study explored the PASS cognitive processing theory in junior high students (aged 11-15 years) with and without written expression disabilities. Ninety-six students with ( $n = 48$ ) and without ( $n = 48$ ) written expression disabilities were administered the Das-Naglieri Cognitive Assessment System (DN-CAS, 1997) and the writing subtests of the Wechsler Individual Achievement Test (WIAT, 1998). Discriminant analyses were utilized to identify the DN-CAS subtests and composites that contributed to group differentiation. The Planning composite was found to be the most significant contributor among the four composite scores. Subsequent efficiency of classification analyses provided strong support for the validity of the obtained discriminant functions in that the four DN-CAS composite scale scores correctly identified 85% of the students as members of their respective groups.

- “the present study demonstrated the potential of the CAS to correctly identify students who **demonstrated behaviors consistent with ADHD diagnosis.**”

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## Intelligence Tests and Prediction

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- Intelligence tests are one of the primary tools for identifying children with Intellectual disability, specific learning disabilities, and giftedness
  - The goal is to determine if there is a cognitive explanation for academic successes or failure
- The correlations between intelligence and achievement tests and the profiles of scores these tests measure tell us the value these test scores have for both predication and explanation of specific academic success and failure

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**WE CAN DO  
BETTER**

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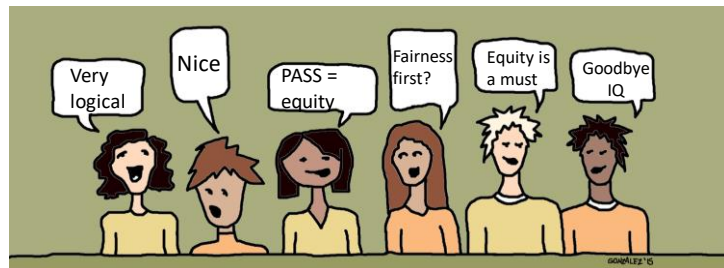
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## Core Group Activity

### QUESTION:

- How do you intend to practice in a socially equitable manner?
- Can you integrate PASS theory into your comprehensive assessments



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CAS2 is Different

#### My Professional Journey

- An Awakening About Traditional Intelligence Tests

#### A Theory Based on Brain Function

- Thinking vs Knowing and Social Justice

#### From PASS to CAS2

- A Different View of People

#### Research Update

- PASS and Equity – Measure Thinking not Knowing
- To *g* or not to *g*

#### Administration and Interpretation Issues

- Test order, subtest interpretation, etc.

#### Reasons To Change

- Validity of PASS Theory

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## Administration Details

- Core Battery is the first 2 subtests in each of the PASS scales
- Order of administration is IMPORTANT
  - Why is Planning first and Successive last?
- Should you use parts of the CAS2?
- Demonstration, Example, and Provide Help option

**Table 1.2 Structure of the CAS Scales and Subtests in Order of Administration**

Scale	Subtests
<b>Planning</b>	Matching Numbers (MN) Planned Codes (PGI) Planned Connections (PCn)
<b>Simultaneous</b>	Nonverbal Matrices (NvM) Verbal-Spatial Relations (VSR) Figure Memory (FM)
<b>Attention</b>	Expressive Attention (EA) Number Detection (ND) Receptive Attention (RA)
<b>Successive</b>	Word Series (WS) and or Sentence Repetition (SR) Speech Rate (SPR, ages 5–7 years) or Sentence Questions (SQ, ages 8–17 years)

Expose Example A and say,

**Look at this page** (point to the page). **Draw a line from the number 1 to the number 2, 2 to 3, 3 to 4, and 4 to 5.** Provide help if necessary.

With Example A still exposed, say,

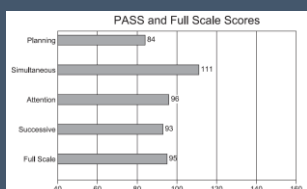
**I'm going to give you some more of these to do. You should always start from the number 1** (point to the number 1 in the bold box in Example A) **and draw a line from one number to the next until you get to the last number** (point to the number 5). **Work as quickly as you can without making a mistake, and tell me when you're finished.**

**Ready?** (Provide a brief explanation if necessary.)

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## Interpretation Details

- Full Scale – Is misleading if there is PASS scale variability
- You may want to exclude the Full Scale completely



INTERPRETATION | 23

### FULL SCALE

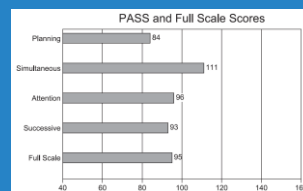
Tony earned a Cognitive Assessment System, Second Edition (CAS2) Full Scale score of 95, which is within the Average classification and is a percentile rank of 37. This means that his performance is equal to or greater than that of 37% of children his age in the standardization group. There is a 90% probability that Tony's true Full Scale score falls within the range of 91 to 99. The CAS2 Full Scale score is made up of separate scales called Planning, Attention, Simultaneous, and Successive cognitive processing. Because there was significant variation among the PASS scales, the Full Scale will sometimes be higher and other times lower than the four scales in this test. The Planning Scale was found to be a significant cognitive weakness. This means that Tony's Planning score was a weakness both in relation to his average PASS score and when compared to his peers. This cognitive weakness has important implications for diagnosis, eligibility determination, therapeutic and educational programming. The Simultaneous Scale was found to be a significant cognitive strength. This means that Tony's Simultaneous score was a strength both in relation to his average PASS score and when compared to his peers. This cognitive strength has important implications for instructional and educational programming.

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## INTERPRETATION | 23

## FULL SCALE

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## Interpretation Details

### PASS SCALE – IPSATIVE AND NORMATIVE COMPARISONS

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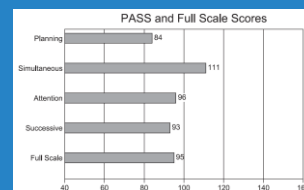
## 124 ESSENTIALS OF CAS2 ASSESSMENT

## PLANNING SCALE

Tony's Planning score was significantly lower than his average PASS score and below the average range. This means that Tony performed particularly poorly on tests that required strategies for solving the problems on the Planning tests. He had trouble with development and use of good strategies, control of behavior, self-monitoring, and self-correction when completing these tests. Tony earned a CAS2 Planning Scale score of 84 which is within the Below Average classification and is a percentile rank of 14. The percentile rank indicates that Tony did as well as or better than 14% of others his age in the standardization group. There is a 90% probability that Tony's true Planning score is within the range of 79 to 92. This cognitive weakness has important implications for diagnosis, eligibility determination, and educational and therapeutic programming because children who are weak on the Planning Scale often have problems with tasks requiring strategies, completing schoolwork and other tasks on time, impulse control, self-monitoring, and social situations. There was no significant variation among his three subtest scores in the Planning Scale.

## Interpretation Details

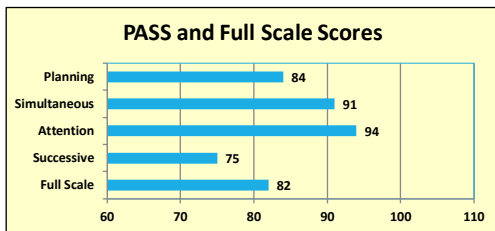
### INTERPRET EACH SCALE FROM PASS THEORY



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# Lupe Aged 12 Years

- Initial referral !
- Her low Successive processing influenced Planned Connections subtest
- Pro-rated Planning score = 97



Composite/Subtest	Standard Scores	Percentile Rank
Brief Achievement (BA-3) Composite	74	4
Letter & Word Recognition	80	9
Letter & Word Recognition-Spanish	47	<0.1
Math Computation	76	5
Spelling	75	5
Reading Composite	75	5
Letter & Word Recognition	80	9
Reading Comprehension	72	3
Math Composite	74	4
Math Concepts & Applications	74	4
Math Computation	76	5
Written Language Composite	-	-
Spelling	75	5

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## My Professional Journey

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## A Theory Based on Brain Function

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## Summary: PASS theory and CAS2 (see Naglieri & Otero, 2017)

1. The PASS scales on the CAS2 measure *thinking* (i.e. basic psychological processing) rather than *knowing* (e.g., vocabulary, arithmetic etc.), making the test good for assessment of diverse populations and those with limited educational opportunity.
2. PASS scores can be easily obtained in 20 minutes (using the 4-subtest **CAS2 Brief**), 40 minutes (using the **8-subtest Core Battery**) or 60 minutes (using the **12-subtest Extended Battery**), scored and a narrative reports provided using the **online program**. (Digital CAS2 is in final stages of development.)
3. PASS results are easy for teachers, parents and the students themselves to understand because the concepts can be explained in non-technical language.
4. The PASS theory and the CAS2 provide a way to both define and assess 'basic psychological processes' so that practitioners can obtain scores that are consistent with state and federal IDEA guidelines.
5. The PASS scores are strongly correlated to achievement, show distinct patterns of strengths and weaknesses, are very useful for intervention planning.
6. The CAS2 provides defensible Discrepancy Consistency Method to identify students with SLD.
7. Research has shown that PASS scores have relevance to instruction and intervention.

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## Questions and Thoughts Please



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

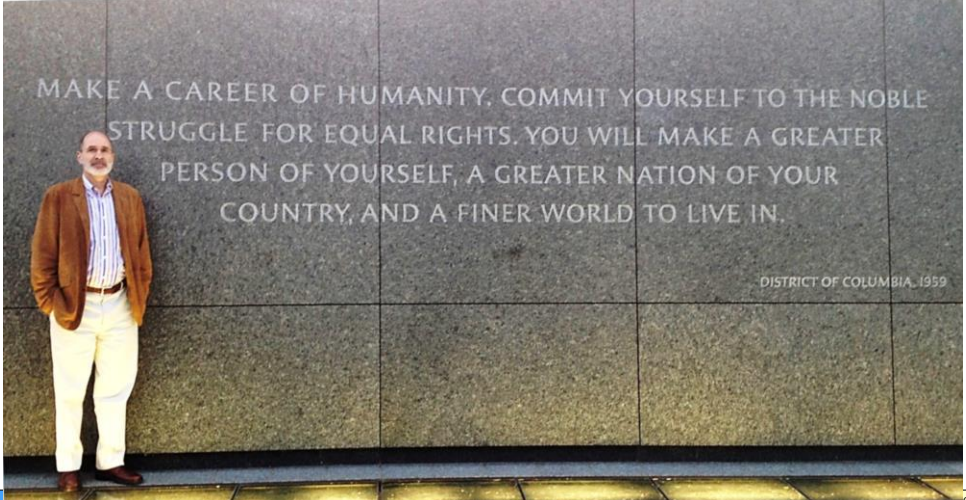
— *Maya Angelou* —

## Change Demands Courage to Think Differently

**Socially just assessment requires self-reflection (What am I doing?) and self-correction (I will choose something new) in response to current research (There is a better way!).**

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## *Equitable Assessment is Essential*



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

DISTRICT OF COLUMBIA, 1959

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