Description of the PASS Neurocognitive Theory of Intelligence as Measured by the CAS2

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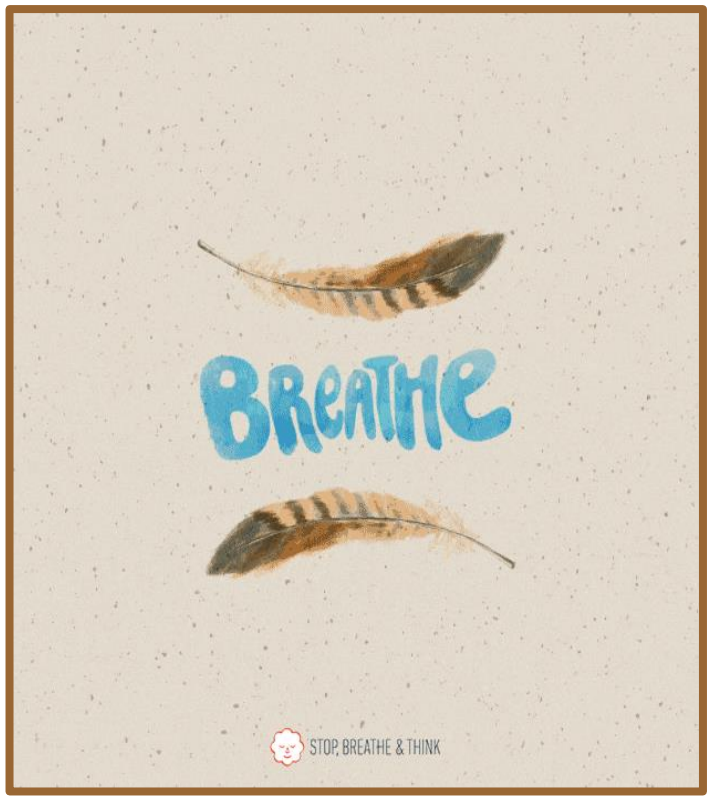
WELCOME & THANKS


Who Is Here Today?

Need to Get Ready to Learn?

Mindful Breathing



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

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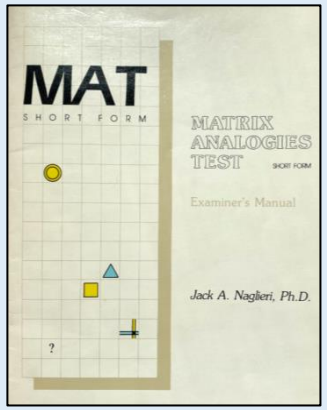

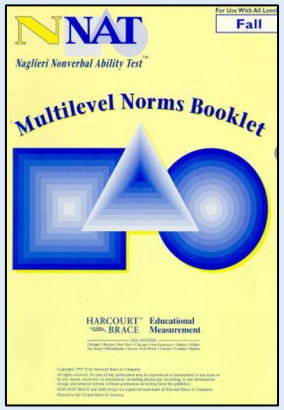

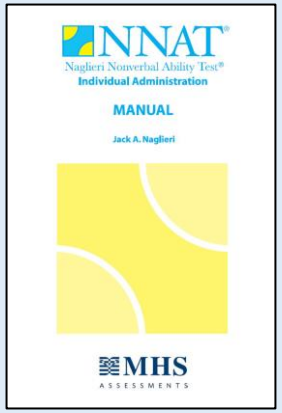

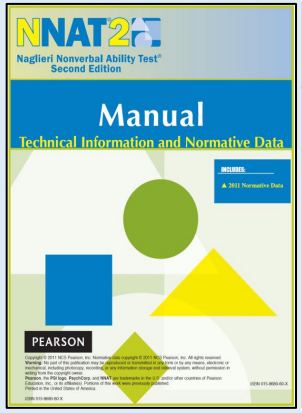

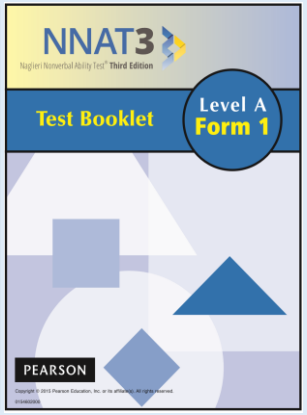

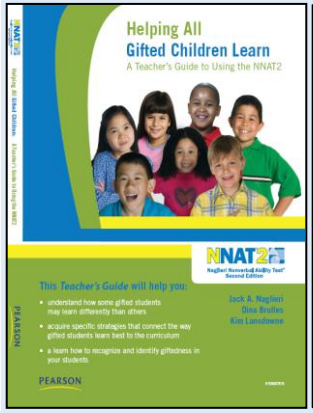

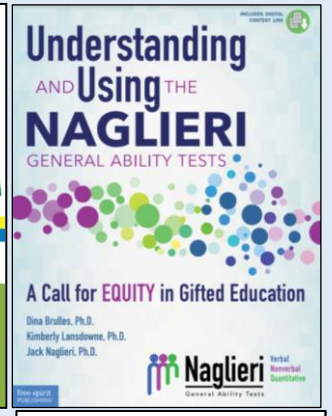

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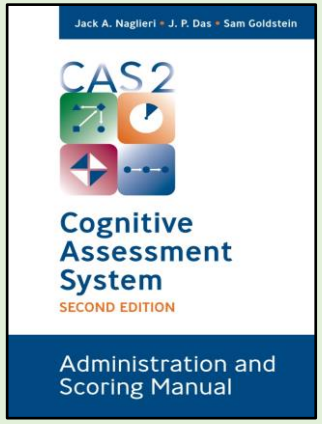

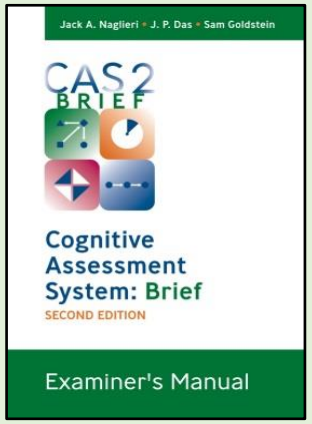

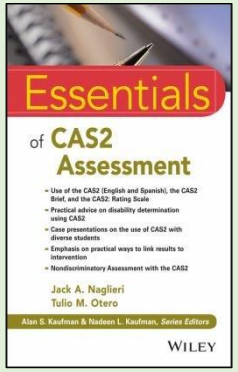

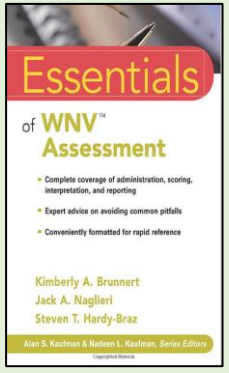

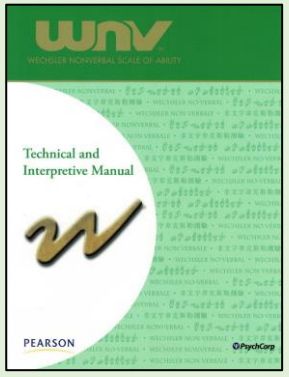

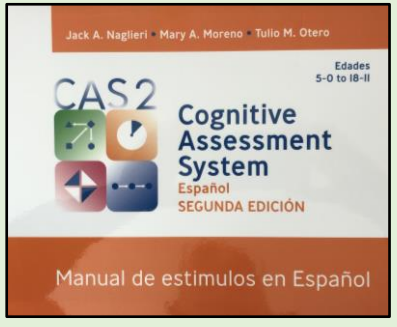

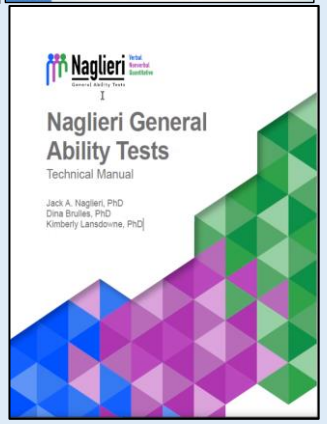

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TOOLS FOR PSYCHOLOGICAL AND EDUCATIONAL ASSESSMENT

WELCOME TO JACKNAGLIERI.COM

This site was created to provide tools and resources for both psychologists and educators alike.

Jack A. Naglieri, PhD. has held faculty appointments at Northern Arizona University, The Ohio State University, and George Mason University. He is currently a Research Professor at the University of Virginia, Senior Research Scientist at the Devereux Center for Resilient Children, and Emeritus Professor of Psychology at George Mason University.

Dr. Naglieri has developed many tests used by psychologists and educators such as the Naglieri Nonverbal Ability Test, the Cognitive Assessment System, Autism Spectrum Rating Scale, Devereux Student Strength Assessment, Comprehensive Executive Function Inventory, and forthcoming Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative. He is widely known for his efforts to increase participation of traditionally under-represented students in gifted education. He is also well known for the PASS Theory of Intelligence and its application using the CAS2 for identification of specific learning disabilities using the Discrepancy Consistency Method, fair and equitable assessment of diverse populations, and academic interventions related to PASS neurocognitive processes.

NAGLIERI GENERAL ABILITY TESTS: VERBAL, NONVERBAL AND QUANTITATIVE

The *Naglieri General Ability Tests: Verbal, Nonverbal* and *Quantitative* provide equitable assessment of students for gifted educational programs.

HANDOUTS

Download PDF handouts of past presentations and related research on the following tests and topics

WEBINARS

A webinar library that covers a variety of topics such as EF, Autism Assessment, and SLD. We have created this library to share and learn from each other while staying home and safe.

EQUITY

xx this section provides information about equity in the CAS and equity in gifted assessment. GNAT

EXECUTIVE FUNCTION

xxx Comprehensive examination at executive function, its measurement, and intervention.

HELPING CHILDREN LEARN

Helping Children Learn was written to give parents and teachers simple ways to make learning fun and easy for any child. Handouts

Naglieri Verbal Nonverbal Quantitative
General Ability Tests

HOME AUTHORS ABOUT WEBINARS RECENT HANDOUTS FAQS MORE

EQUITABLE ASSESSMENT OF GIFTED STUDENTS USING THE

Naglieri General Ability Tests

Now Available

WHY WE DO WHAT WE DO

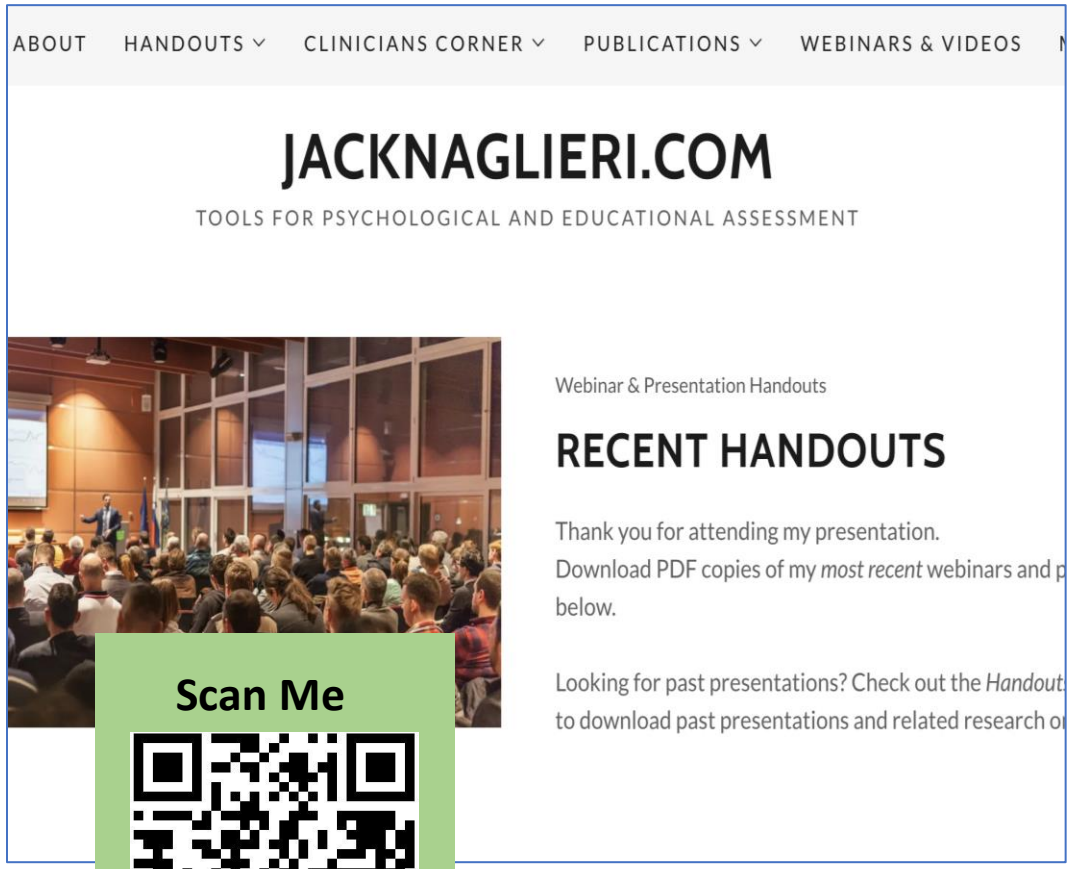
Inequity in Gifted Testing

Recently researchers have estimated that more than 850,000 African-American, Hispanic, and Native American students in K-12 public school today could have been identified for gifted programs but were not. This problem could be addressed by using ability tests that were designed and validated to be equitable for all students.

Achieving Equity

The *Naglieri General Ability Tests* by Jack A. Naglieri, PhD, Dina M. Brulles, PhD and Kimberly Lansdowne, PhD were explicitly developed to address the need for equitable assessment of gifted students from diverse cultural, linguistic, and socioeconomic backgrounds so they can receive educational opportunities appropriate for their ability.

Scan **QR Code** for access to the handout for this presentation



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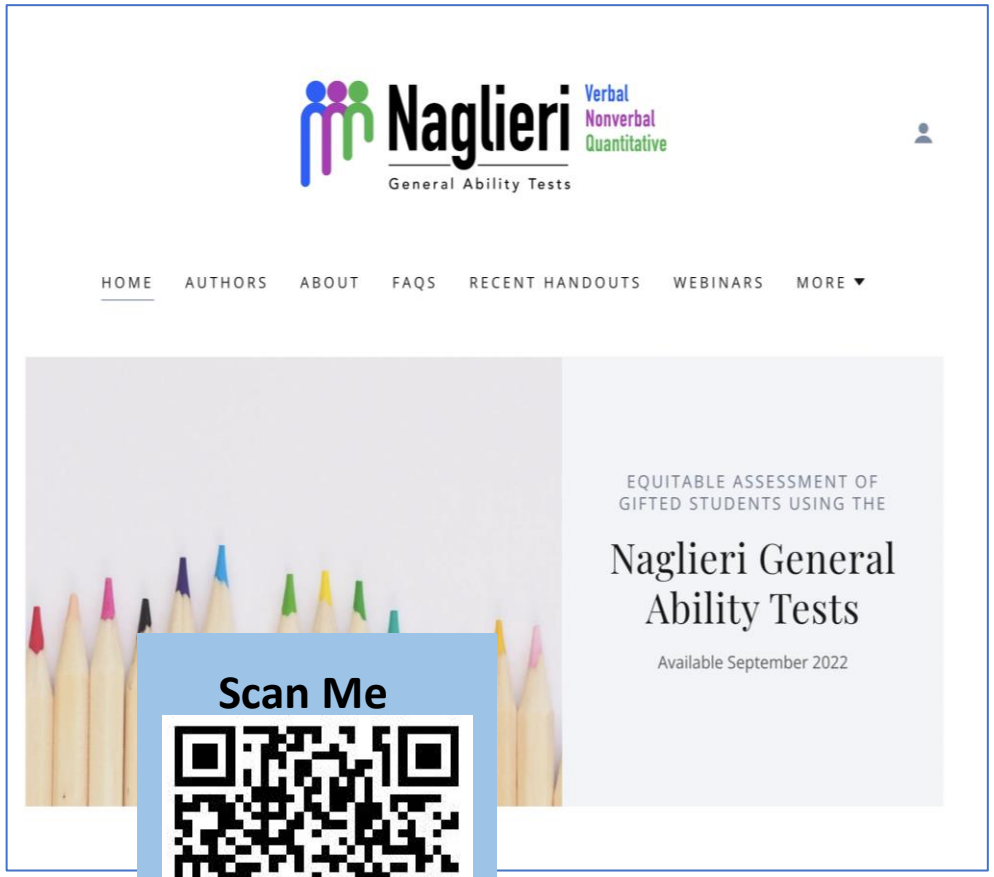


Scan Me

Core Group Discussion → Deeper Learning

- **O**rganizer – Guide the discussion
- **R**ecorder – Keep notes and speak for the group

The BIG Picture

- The results of an intelligence tests can change the course of a student's life!
- We need intelligence tests that
  - are fair for students from diverse populations
  - help us understand WHY a student fails
  - Inform us about intellectual strengths & weaknesses
  - Help us make a diagnosis and determine interventions
- We need to use 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-2nd* Edition measures a student's ABILITY to THINK and LEARN

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

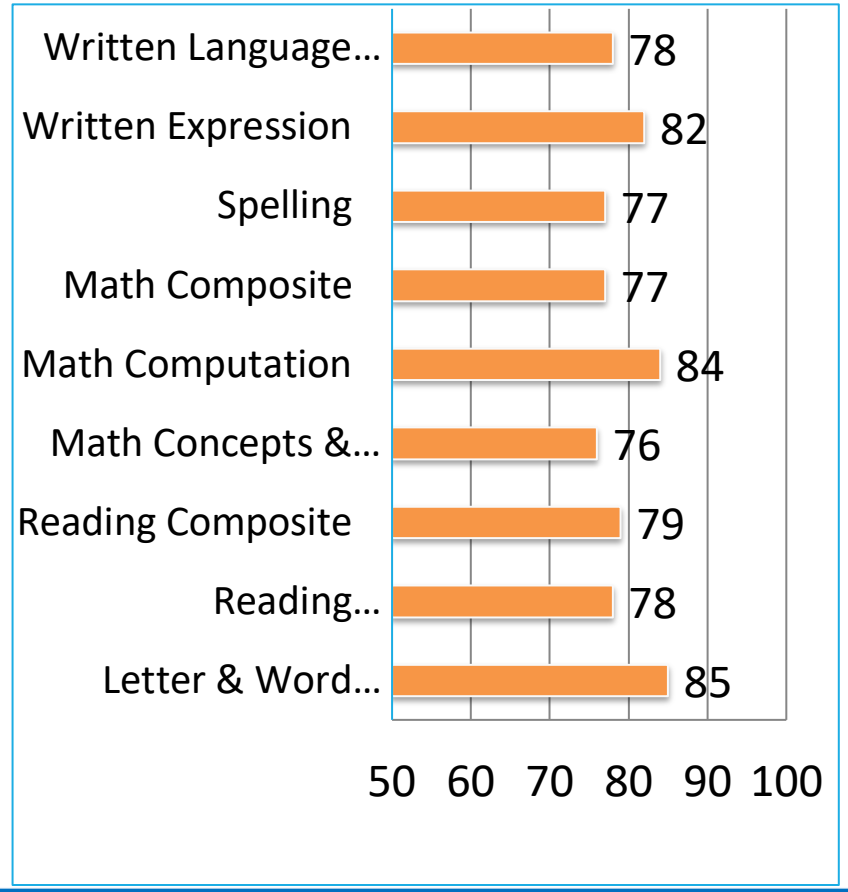
REASON FOR REFERRAL

- 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

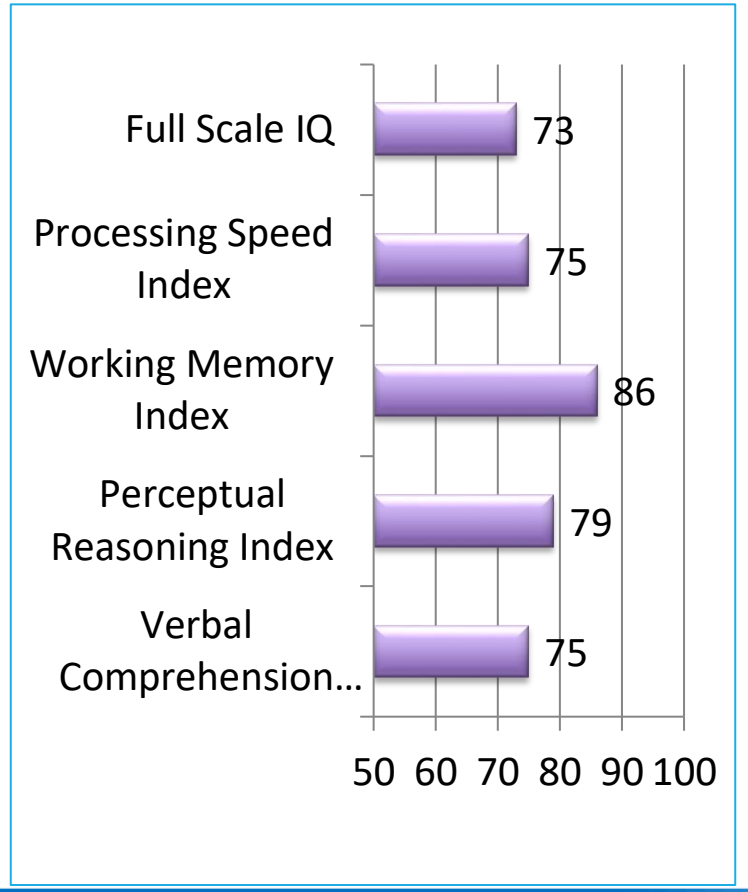
Note: this is not a picture of Alejandro

WISC-IV ASSESSMENT

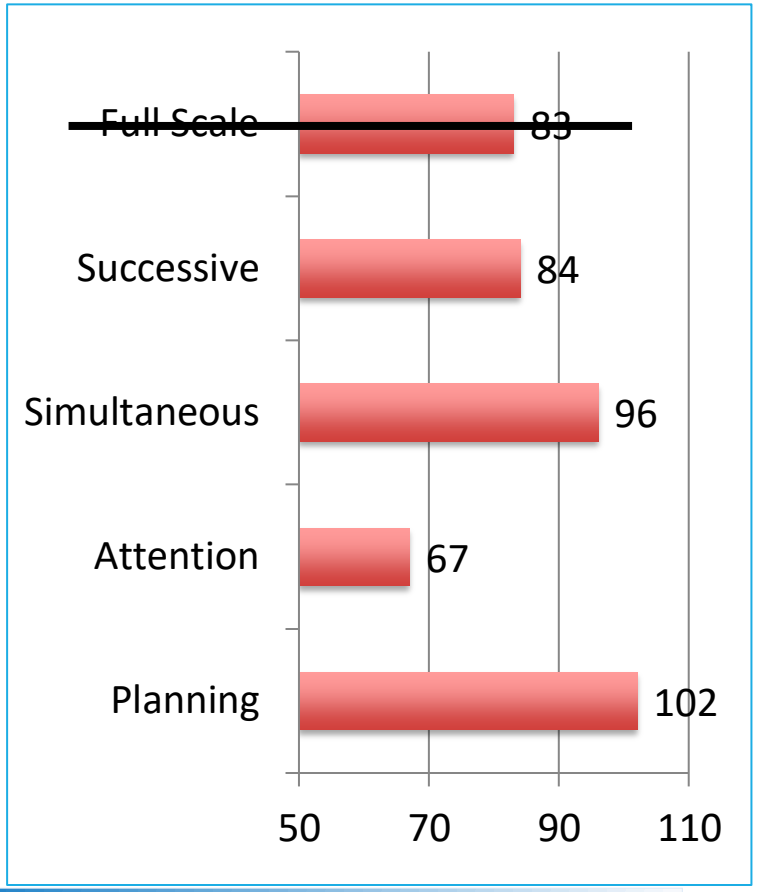
KTEA2



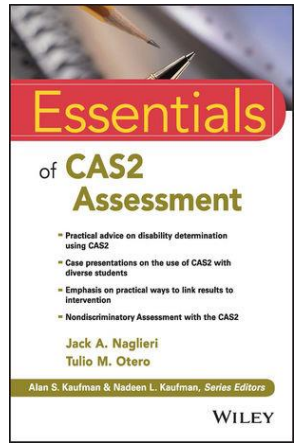
WISC-IV (Spanish)



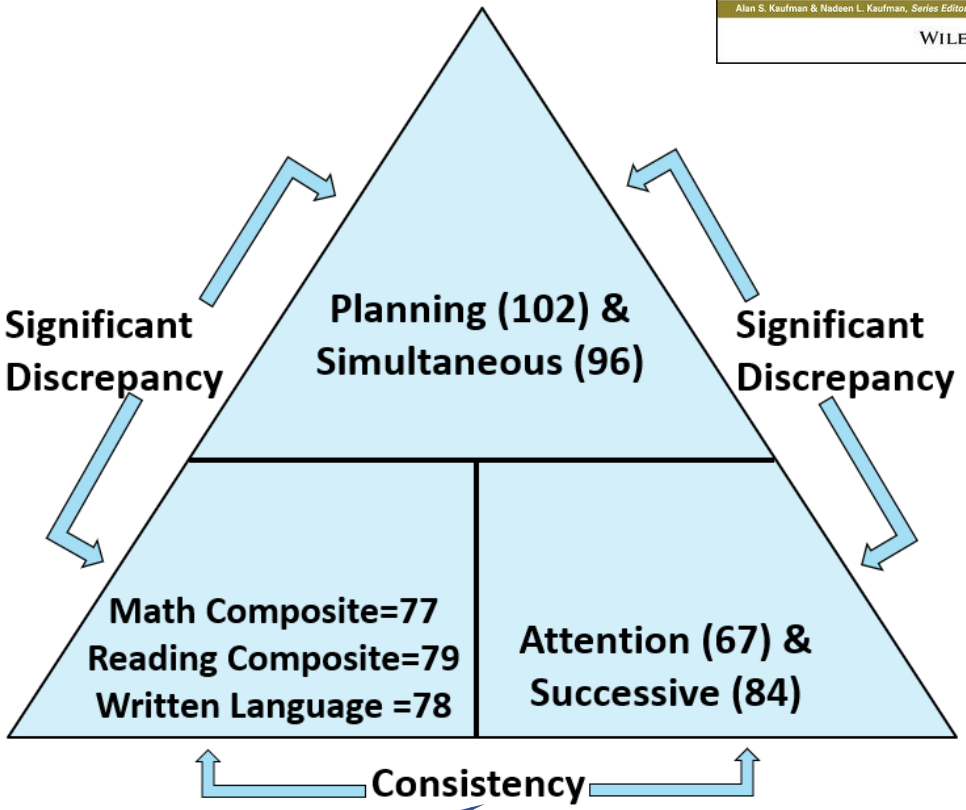
CAS2



Alejandro and PASS (by Dr. Otero)

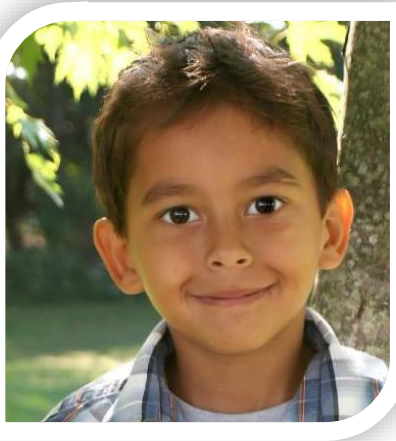


- Alejandro is not a slow learner.
- He has good processing scores:
  - Simultaneous = 96 and Planning = 102
- He has a "disorder in one or more of the basic psychological processes"
  - Attention = 67 and Successive = 84
- Using the **Discrepancy Consistency Method** (1999, 2017) he meets criteria for SLD (see Naglieri & Otero, 2017).
- Evidence of Dyslexia (low Successive) and Inattentive Type of ADHD (low Attention)



The Consistency portion of the triangle answers the question: "Why does the student fail?"

Alejandro's Intervention Plan



1. Be Intentional and Transparent
   - Teach Alejandro about his brain and his PASS strengths and challenges
2. Encourage Motivation and Persistence (Mindsets)
   - Teach Alejandro about Growth Mindsets.
   - Discuss what will he say to himself when learning gets hard.
3. Strategies to Build on His Strengths to Manage Challenges (Skill Sets)
   - Use his Planning and Simultaneous Strengths to support his learning challenges
   - Develop strategies to manage challenges in Attention and Successive processing
4. Encourage independence and self-efficacy
   - Have Alejandro self assess regularly and note what's working and what he needs to do differently.

Ideas to Consider

My Journey

Historical Context

Testing My Hypothesis About Intelligence Tests

PASS Theory and Measurement

Closing remarks

Intelligence Redefined

Traditional IQ and Achievement Tests

- When I started working as a school psychologist in 1975…I noticed that parts of the intelligence tests we used were VERY similar to parts of the achievement tests
  - For example, the Achievement Test had a General Information and Arithmetic subtests JUST LIKE THE WISC!

1975 Charles Champagne Elementary, Bethpage, NY

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

My Feelings - Confirmed

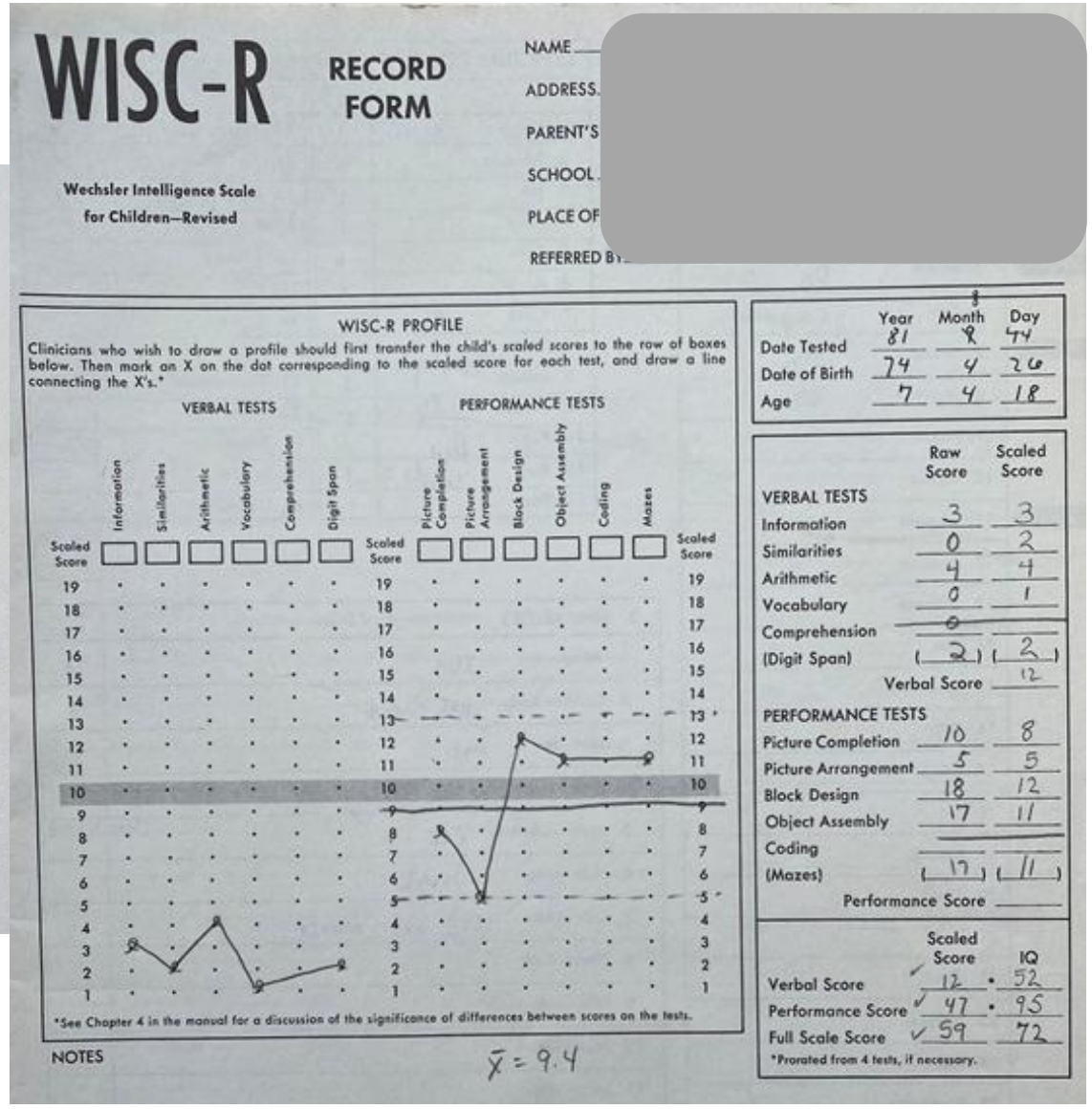
- Teaching intellectual assessment to school psychology students at Northern Arizona University
- Was it reasonable to measure ‘intelligence’ with questions that required knowledge?
- Testing in Havasupai answered that question

1981

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.



WISC-V Full Scale

Verbal Comprehension	Visual Spatial	Fluid Reasoning	Working Memory	Processing Speed
Similarities	Block Design	Matrix Reasoning	Digit Span	Coding
Vocabulary	*Visual Puzzles*	Figure Weights	*Picture Span*	*Symbol Search*
Information		*Picture Concepts*	*Letter–Number Sequencing*	*Cancellation*
Comprehension		*Arithmetic*		

Naglieri, J. A. (1982). Does the WISC-R measure verbal intelligence for non-English speaking children? *Psychology in the Schools, 19*, 478-479.

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

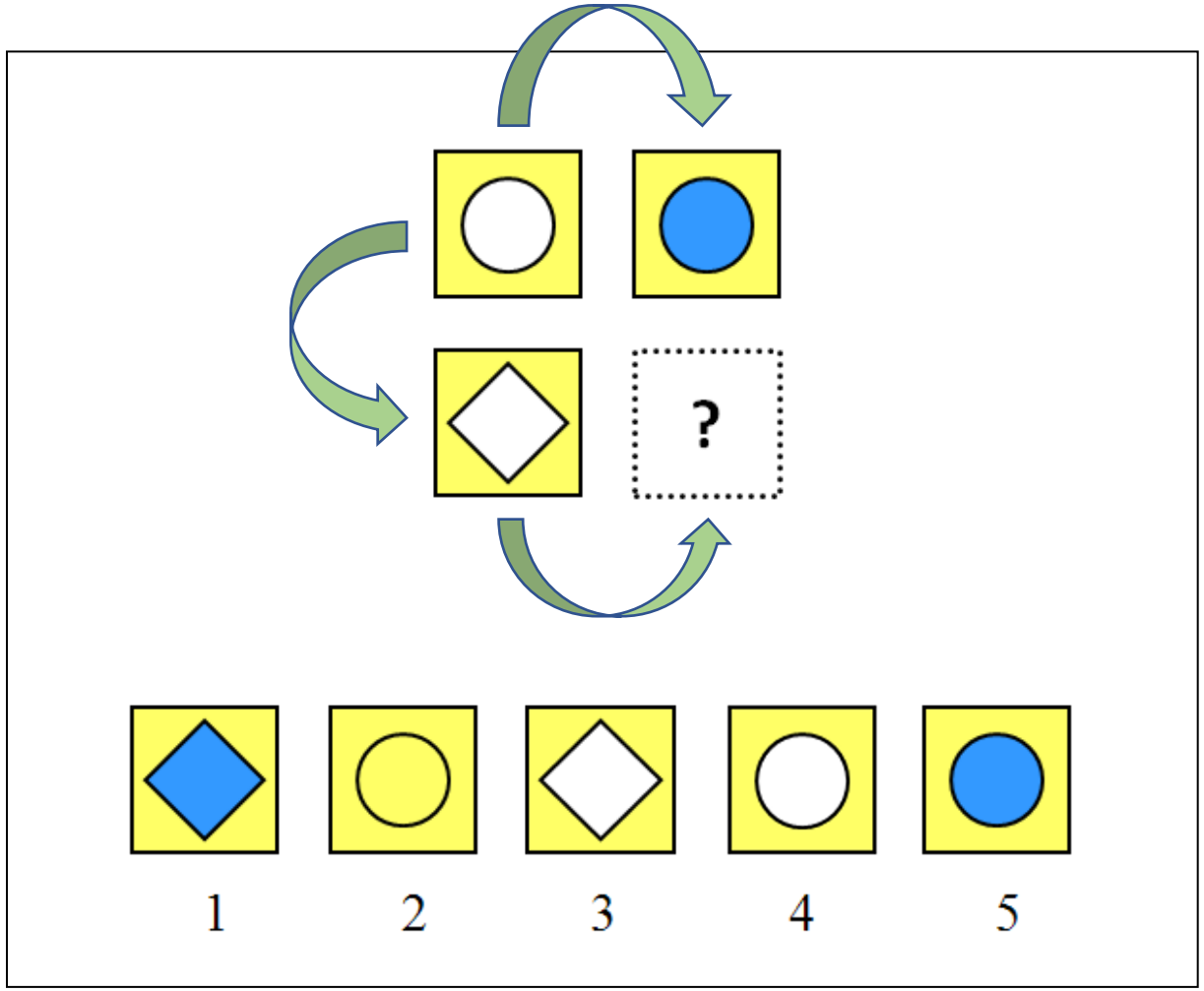
Naglieri

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)

Tests can Measure Thinking and/or Knowing?



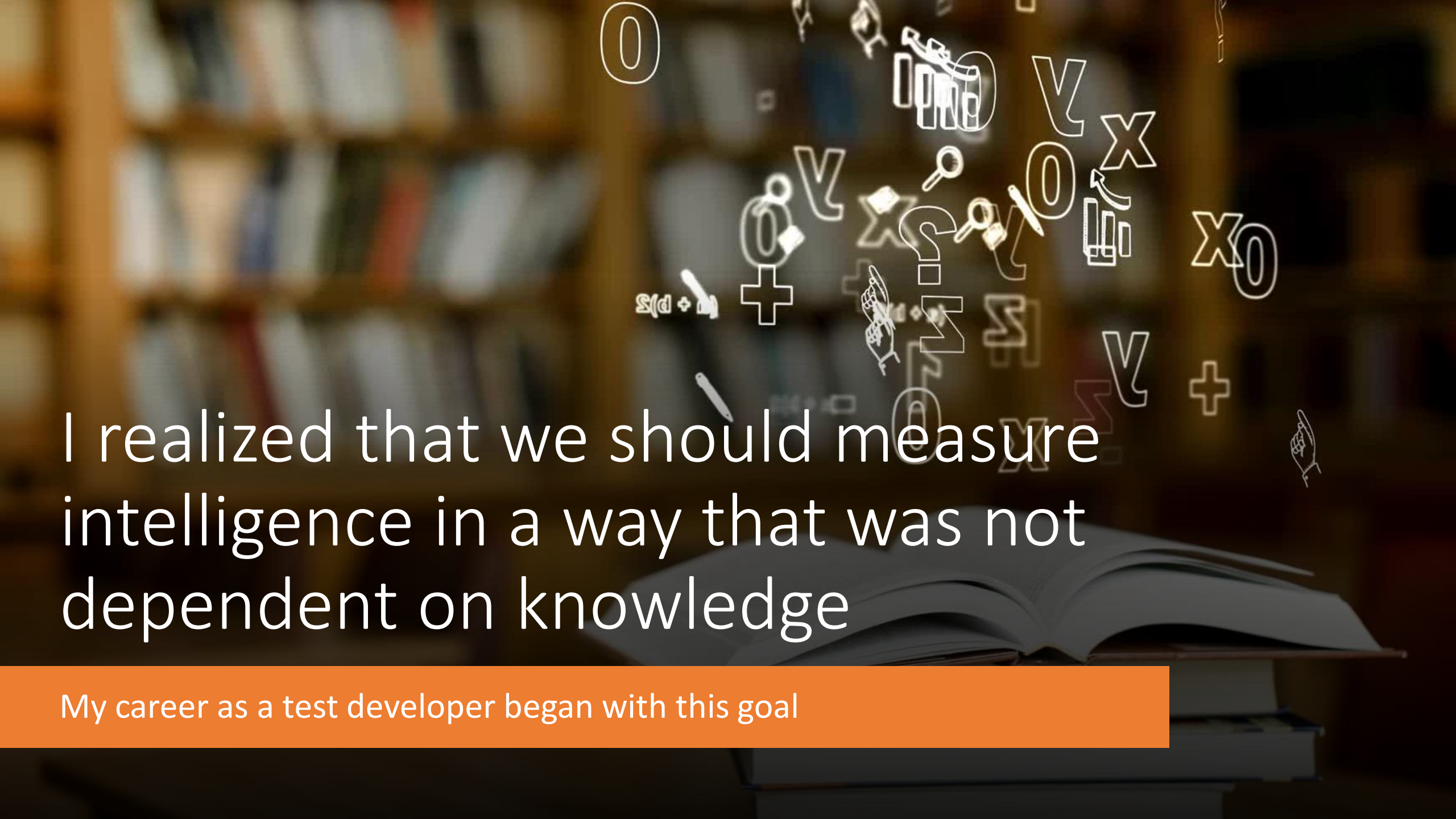
This is a test of THINKING requiring minimal Knowing

Girl is woman as boy is to ____?

3 is to 6 as 4 is to ____?

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

These are tests of Knowing and Thinking



I realized that we should measure intelligence in a way that was not dependent on knowledge

My career as a test developer began with this goal

Naglieri's Nonverbal Tests: 1985 to Present

- **First and Second Versions**

MAT Short and Expanded Forms 1985

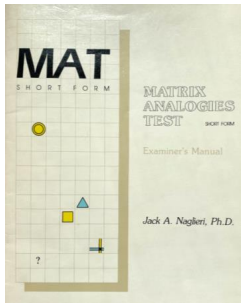
- **The goal was to provide efficient ways to evaluate *general ability* for ALL students and especially "intellectually gifted children from disadvantaged backgrounds** (Naglieri, 1985, p. 3)."
  Two options: The MAT: Expanded Form for individual and the MAT: Short Form for group administration.

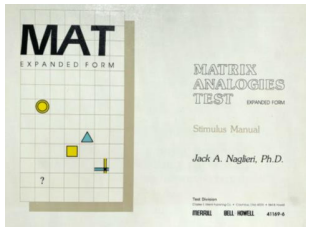
Validity Results:

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

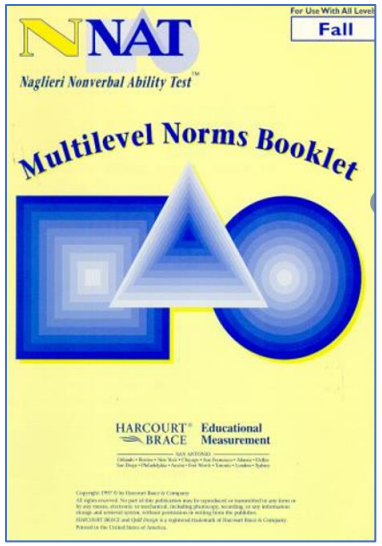
Naglieri's Nonverbal Tests : 1985 to Present

• Third Version of the Naglieri Nonverbal Tests





MAT Short and Expanded Forms 1985



Naglieri Nonverbal Ability Test 1997

- **The MAT was rebranded as the Naglieri Nonverbal Ability Test Multilevel (NNAT)** and released as a group administered test.

- **Initial Research Findings:**
- Naglieri, J. A., & Ronning, M. E. (2000). The Relationships between General Ability Using the NNAT and SAT Reading Achievement. *Journal of Psychoeducational Assessment, 18,* 230-239. STRONG CORRELATION WITH ACHIEVEMENT

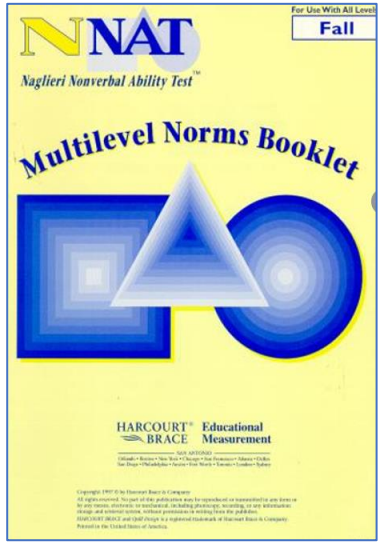
- Naglieri, J. A., & Ronning, M. E. (2000). Comparison of White, African-American, Hispanic, and Asian Children on the Naglieri Nonverbal Ability Test. *Psychological Assessment, 12,* 328-334. TRIVIAL DIFFERENCES BY RACE AND ETHNICITY

- Naglieri, J., & Ford, D. Y. (2003). Addressing Under-representation of Gifted Minority Children Using the Naglieri Nonverbal Ability Test (NNAT). *Gifted Child Quarterly, 47, 155-160*. SIMILAR % OF BLACK, WHITE & HISPANICS FOUND USING THE NNAT

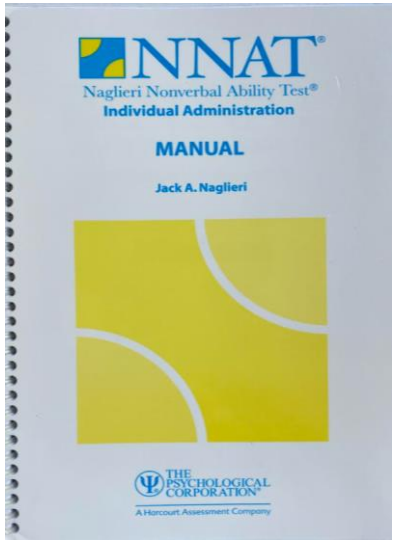
Naglieri's Nonverbal Tests : 1985 to Present

- **Fifth Version of the Naglieri Nonverbal Tests**

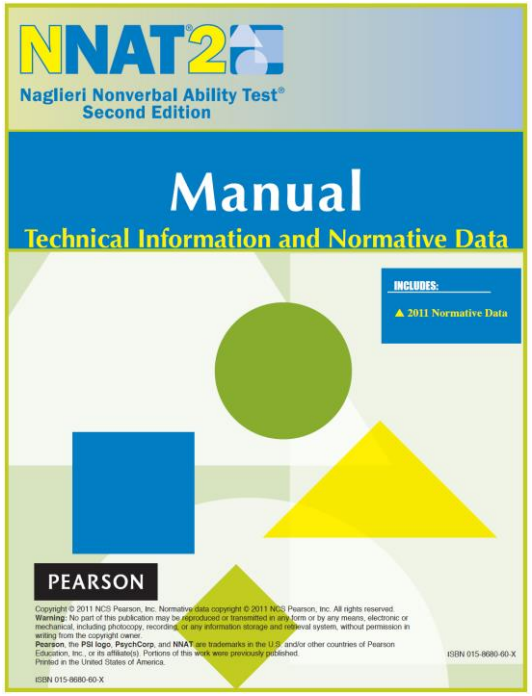
MAT Short and Expanded Forms 1985



Naglieri Nonverbal Ability Test 1997



NNAT –Individual, 2003



The NNAT2 Validity:

- Strong correlation with OLSAT8 (r = .67, N = 592)
- **Strong correlation with Reading & Math (SAT10) (r = .65, N = 2,552)**
- **Small differences by race, ethnicity, or language**
- Strong correlation with the Wechsler Nonverbal Scale (r = .74).

Tests Designed to measure Thinking not Knowing

1. Naglieri, J. A. (1985). Matrix *Analogies Test - Expanded Form*. San Antonio: The Psychological C[illegible]oration.
2. Naglieri, J. A. (1985). Matrix *Analogies Test - Short Form*. San Antonio: The Psychologic[illegible]n.
3. Naglieri, J. A. (1997). Naglieri *Nonverbal Ability Test.* San Antonio, TX: The Psy[illegible].
4. Naglieri, J. A., & Bardos, A. N. (1997). General *Ability Scale for Adults S*[illegible]
5. Naglieri, J. A. (2003). Naglieri *Nonverbal Ability Test - Individual*[illegible]
6. Wechsler, D., & Naglieri, J. A. (2006). *Wechsler Nonverbal S*[illegible]
7. Naglieri, J. A. (2008). *Naglieri Nonverbal Ability Test – 2nd E*[illegible]
8. Naglieri, J. A. (2016). *Naglieri Nonverbal Ability Test – Third* [illegible]earson.
9. Naglieri, J. A. (2022). *Naglieri General Ability Test: Nonverbal* [illegible]da: MHS.
10. Naglieri, J. A. & Brulles, D. (2022). *Naglieri Ability Test: Verbal* [illegible]m, Canada: MHS.
11. Naglieri, J. A. & Lansdowne, K. (2022). *Naglieri Ability Test: Quantitative*. Markham, Canada: MHS.

Nonverbal Tests of "Genal Ability"

Nonverbal tests are fine to measure *general ability*; but psychologists typically need to measure MORE than 'g'. I recommend a multi-dimensional theory of intelligence based on brain function (PASS).

9. Naglieri, J. A., & Das, J. P. (1997). Cognitive *Assessment System. Austin: ProEd*
10. Naglieri, J. A., Das, J. P., Goldstein, S. (2014). *Cognitive Assessment System Second Edition*. Austin, ProEd.
11. Naglieri, J. A., Das, J. P., & Goldstein, S. (2014). *Cognitive Assessment System Second Edition - Brief*. Austin, ProEd.
12. Naglieri, J. A., Moreno, M. A., & Otero, T. M. (2017). *Cognitive Assessment System – Español*. Austin, ProEd.

Ideas to Consider

My Journey

Historical Context

Testing My Hypothesis About Intelligence Tests

PASS Theory and Measurement

Closing remarks

Intelligence Redefined

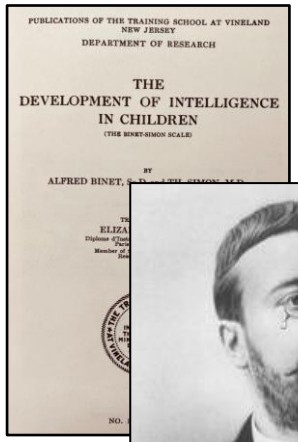
Two Questions:

1. Why do we measure ability the way we do?

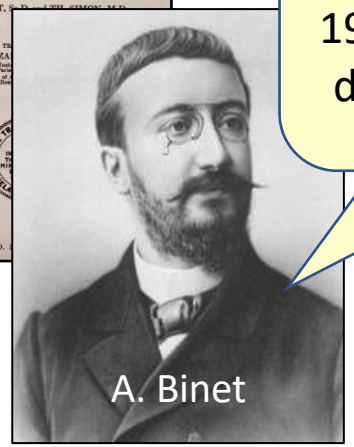
2. Do the tests measure thinking or knowing?

The early history of IQ tests

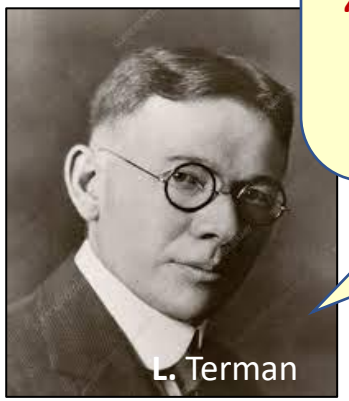
Stanford-Binet → Army Mental Tests → Today


PUBLICATIONS OF THE TRAINING SCHOOL AT VINELAND NEW JERSEY
DEPARTMENT OF RESEARCH

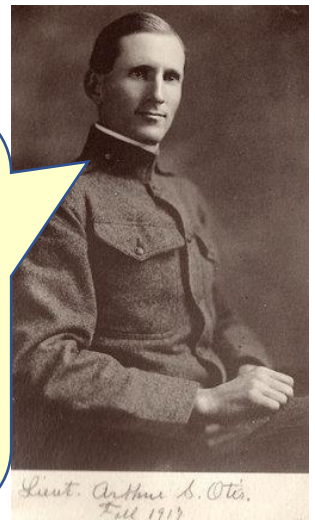
THE DEVELOPMENT OF INTELLIGENCE IN CHILDREN
(THE BINET-SIMON SCALE)



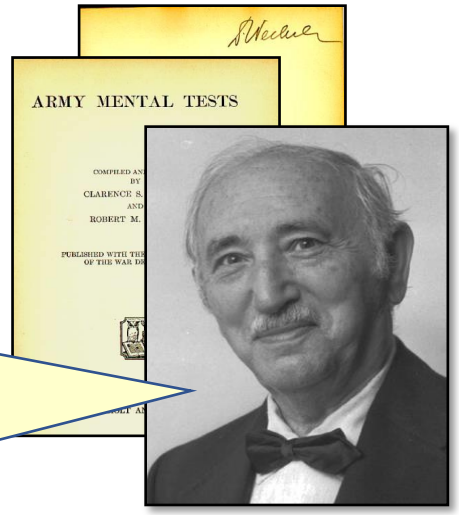
When working on the 1911 scale, Binet removed items from 1908 scale because 'they depended too much on school learning'



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



Arthur Otis (Terman's student) was instrumental in the development of the U.S. Army Alpha (Verbal & Quantitative) and Beta (Nonverbal) and the Otis-Lennon Ability Test



Wechsler based his intelligence test on the U.S. Army Mental Tests (Verbal, Quantitative & Nonverbal)

Alpha & Beta → Wechsler

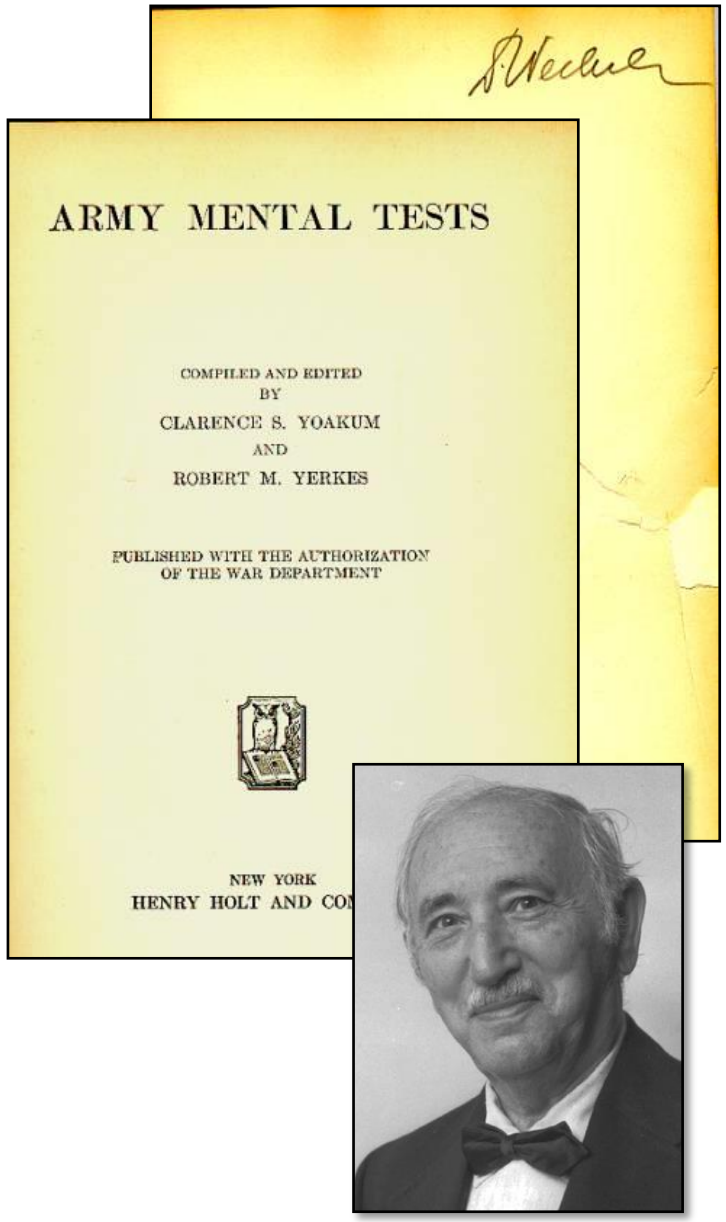
- **Army Alpha**
  - Synonym- Antonym
  - Disarranged Sentences
  - Number Series
  - Arithmetic Problems
  - Analogies
  - Information

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

Verbal & Quant IQ (Knowledge)

Nonverbal IQ (Thinking)

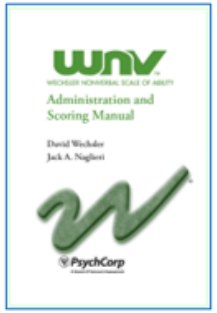
WISC, WJ CogAT & Otis-Lennon



IQ Tests and General Ability

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

- Wechsler "believed that his Verbal and Performance scales represented different ways to access *g* (general ability)", but he never believed [in verbal and] nonverbal intelligence as being separate from *g* (Kaufman, 2008; in Wechsler Nonverbal Manual; Wechsler & Naglieri, 2006)



General Ability not verbal or nonverbal intelligences !

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

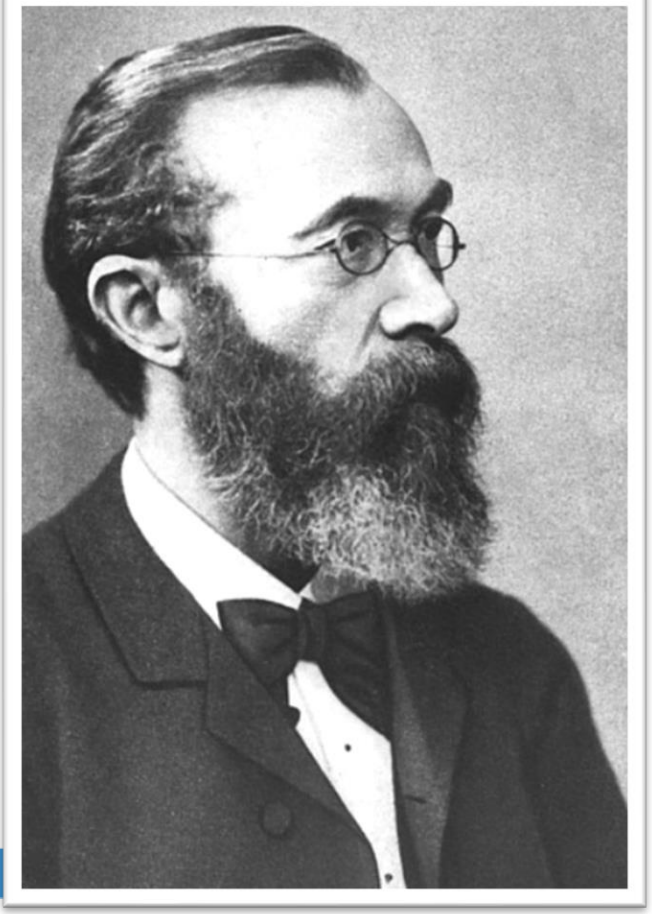
CONCEPT OF GENERAL INTELLIGENCE 61

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



Very Similar Items on "Different" Tests

Woodcock-Johnson Cognitive & Achievement Tests (CHC)

Cognitive: Oral Vocabulary Subtest 1

Sample Items

Point to *near* on subject's page and say: **Another word that means nea**

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

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

Achievement: Reading Vocabulary-Synonyms Subtest 17

Sample Items

Point to *street* on subject's page and say: **Another word that means str**

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

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

Test 17B Reading Vocabulary–Antonyms

Administration Overview

- Test 17 Reading Vocabulary is comprised of three subtests—17A 17C Analogies. You must administer all three subtests to obtain a Vocabulary.
- On this test, the subject reads the stimulus words aloud. You may for later error analysis. However, only the response is scored.

Sample Items

Now we are going to do something different. Point to "night" on subject's **of "night" is "day."**

A. Point to "no" on subject's page and say: **Tell me the opposite of "no."**
▲ ***Correct:*** yes

B. Point to "right" and say: **Tell me the opposite of "right."**
▲ ***Correct:*** wrong, incorrect, left

Test 1C Verbal Comprehension–Antonyms

Administration Overview

- Test 1 Verbal Comprehension is comprised of four subtests—1A 1C Antonyms, and 1D Verbal Analogies. You must administer all Test 1 Verbal Comprehension.
- It is essential that you know the exact pronunciation of the word administering this test.

Sample Items

Now we are going to do something different. Point to word "day" on subje **opposite of "day" is "night."**

A. Point to word "yes" and say: **Tell me the opposite of "yes."**
▲ ***Correct:*** no

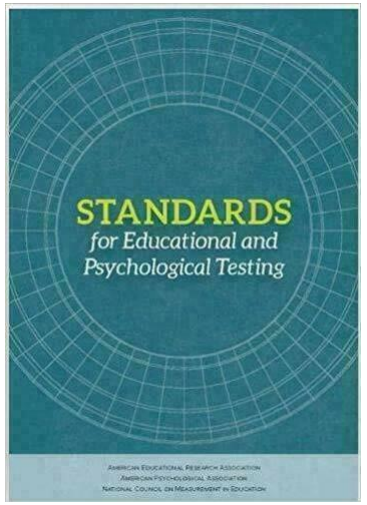
B. Point to word "wrong" and say: **Tell me the opposite of "wrong."**
▲ ***Correct:*** right [bueno], correct

Including Knowledge in "Ability" Tests & Equity

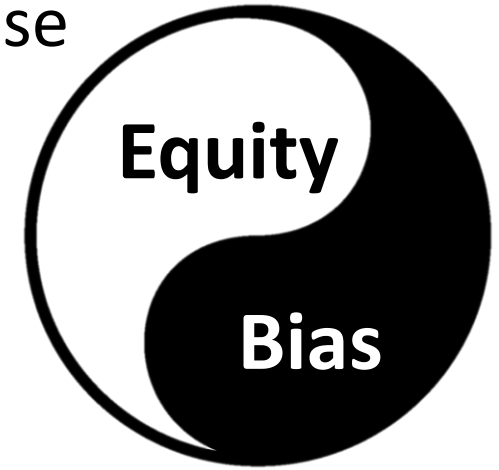
Stanford-Binet-5	WISC-V	WJ-IV	KABC-II	OLSAT	CogAT
• Verbal • Knowledge • Quantitative Reasoning • Vocabulary • Verbal Analogies	• Verbal Comprehension Vocabulary, Similarities, Information & Comprehension • Fluid Reasoning Figure Weights, Arithmetic	• Comprehension Knowledge: Vocabulary & General Information • Fluid Reasoning: Number Series & Concept Formation • Auditory Processing: Phonological Processing	• Knowledge / GC • Riddles, • Expressive Vocabulary, • Verbal Knowledge	• Verbal • Following directions • Verbal Reasoning • Quantitative • Verbal Arithmetic Reasoning	• Verbal Scale • Analogies • Sentence Completion • Verbal Classification • Quantitative • 45 pages of oral instructions

Test Bias vs Test Equity

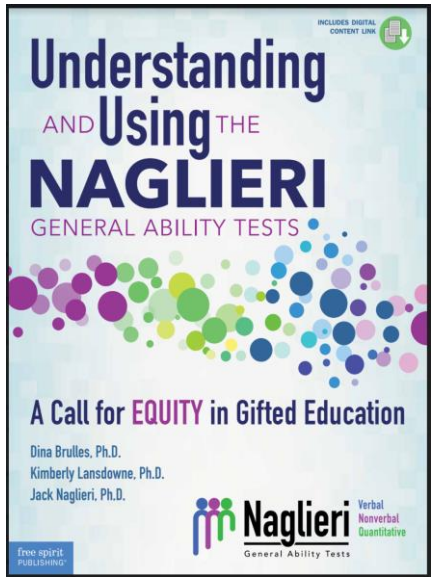
According to the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 2014) Psychometric TEST BIAS and EQUITY are two different ways of measuring test fairness.



- … **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



Race and Ethnic Average Score Differences by Ability Test



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

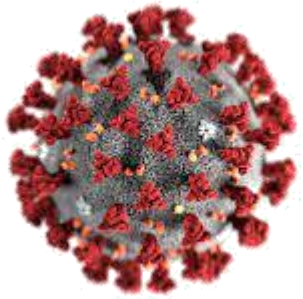
	By Race	By Ethnicity
Tests that require knowledge	**Mn = 9.5**	**Mn = 5.2**
Otis-Lennon School Ability Test (distric wide)	13.6	
Stanford-Binet IV (normative sample)	12.6	
WISC-V (normative sample)	11.6	
WJ- III (normative sample)	10.9	10.7
CogAT7 (Nonverbal scale)	11.8	7.6
CogAT7 - Verbal	6.6	5.3
CogAT7-Quantitative	5.6	3.6
CogAT- Nonverbal	6.4	2.9
CogAT-Total (V, Q & NV)	7.0	4.5
WISC-V (statistical controls normative sample)	8.7	
Tests that require minimal knowledge	**Mn = 4.3**	**Mn = 2.9**
K-ABC (normative sample)	7.0	
K-ABC (matched samples)	6.1	
KABC-II (adjusted for gender & SES)	6.7	5.4
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: 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 and Oakland (2006) and ethnic differences by Sotelo-Dynega, Ortiz, Flanagan, and Chaplin (2013); CogAT7 by Carman, Walther and Bartsch (2018) and Lohman (2016), WISC-V by Kaufman, Raiford, and Coalson (2016); Kaufman Assessment Battery for Children-II by Lichtenberger, Volker, Kaufman & Kaufman, (2006); CAS by Naglieri, Rojahn, Matto, and Aquilino (2005); CAS-2 and CAS2:Brief by Naglieri, Das, and Goldstein, 2014a and 2014b; Naglieri Nonverbal Ability Test by Naglieri and Ronning (2000), and Naglieri General Ability Tests by Naglieri, Brulles, and Lansdowne (2022).

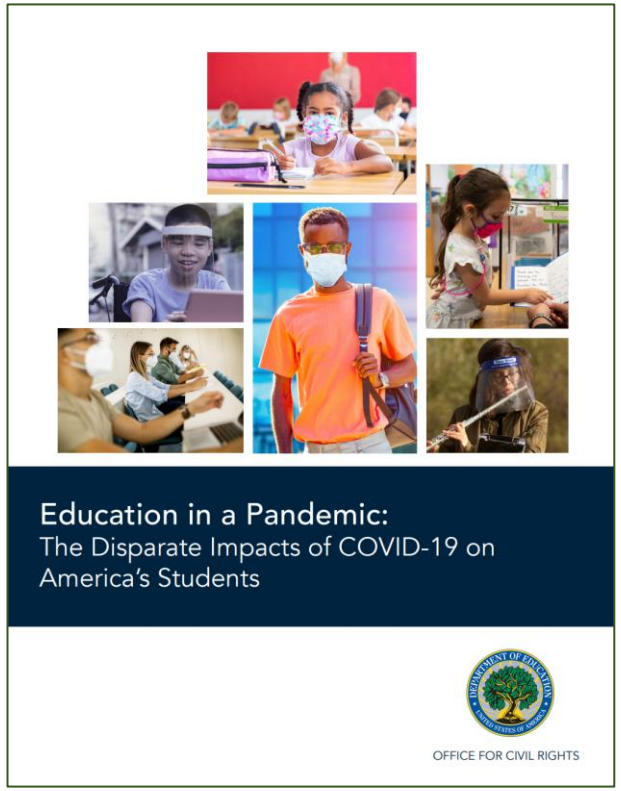
See Brulles, D., Lansdowne, K. & Naglieri, J. A. (2022). Understanding and Using the Naglieri General Ability Tests: A Call to Equity in Gifted Education. Minneapolis, MN: Free Spirit Publishing for more details.

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

Academic Learning Loss & COVID



- COVID-19 has deepened the impact of disparities in access and opportunity for students of color and they are even further behind than they were before the pandemic
- These students' **intellectual scores on traditional tests** will reflect that larger learning gap related to COVID because the norms for intelligence tests that demand knowledge are no longer accurate.



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

CASE by Tulio Otero: Alex (C.A. 6-7 GRADE 1)

REASON FOR REFERRAL

Is classified as *Intellectual Disability* but teachers want more information so they can better understand how he learns

Re-evaluation was conducted

- Academic:

  Limited skill to identify letters sounds

  Possible ASD?

➢Conversationally Bilingual

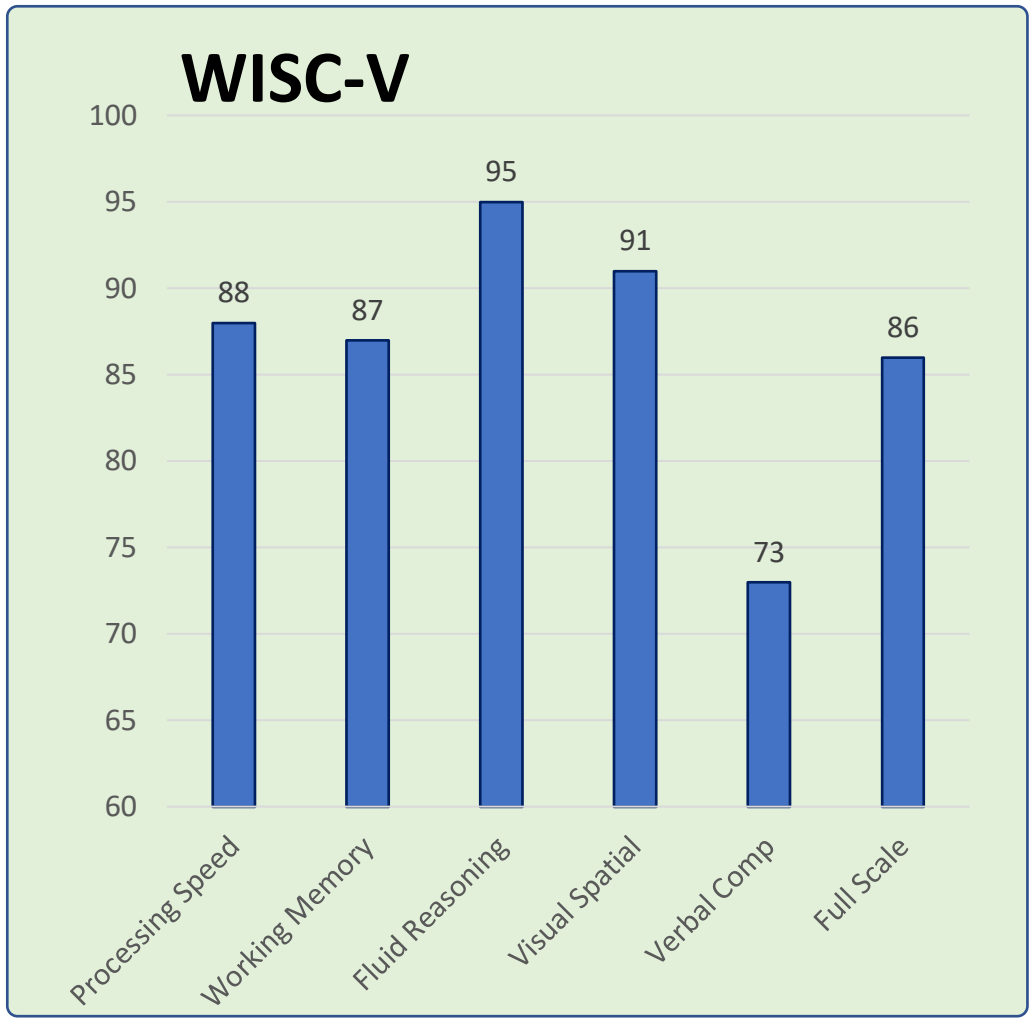
- Behavior:
  - Difficulty following directions
  - Attention concerns

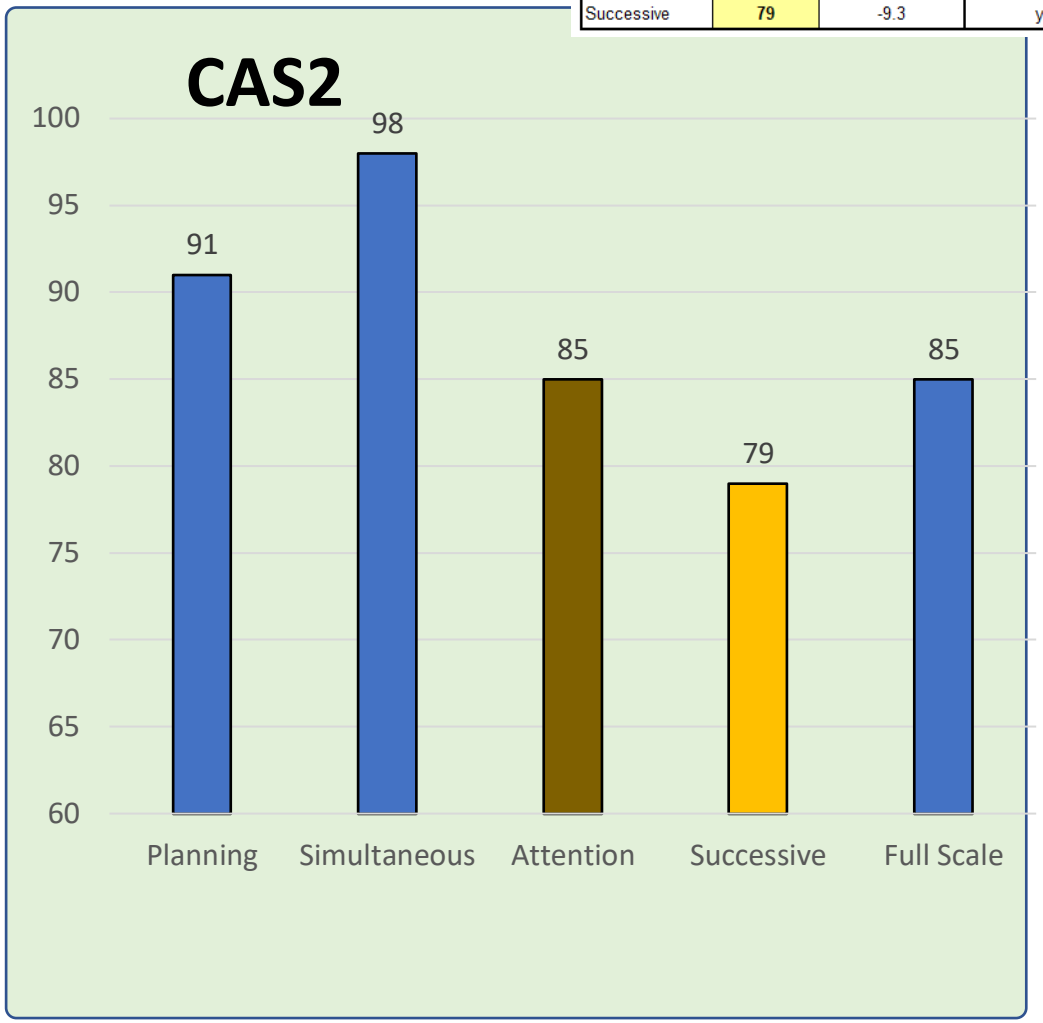
Note: this is not a picture of Alex

WISC-V & CAS2: Alex (6 ½ yrs. Gr. 1)

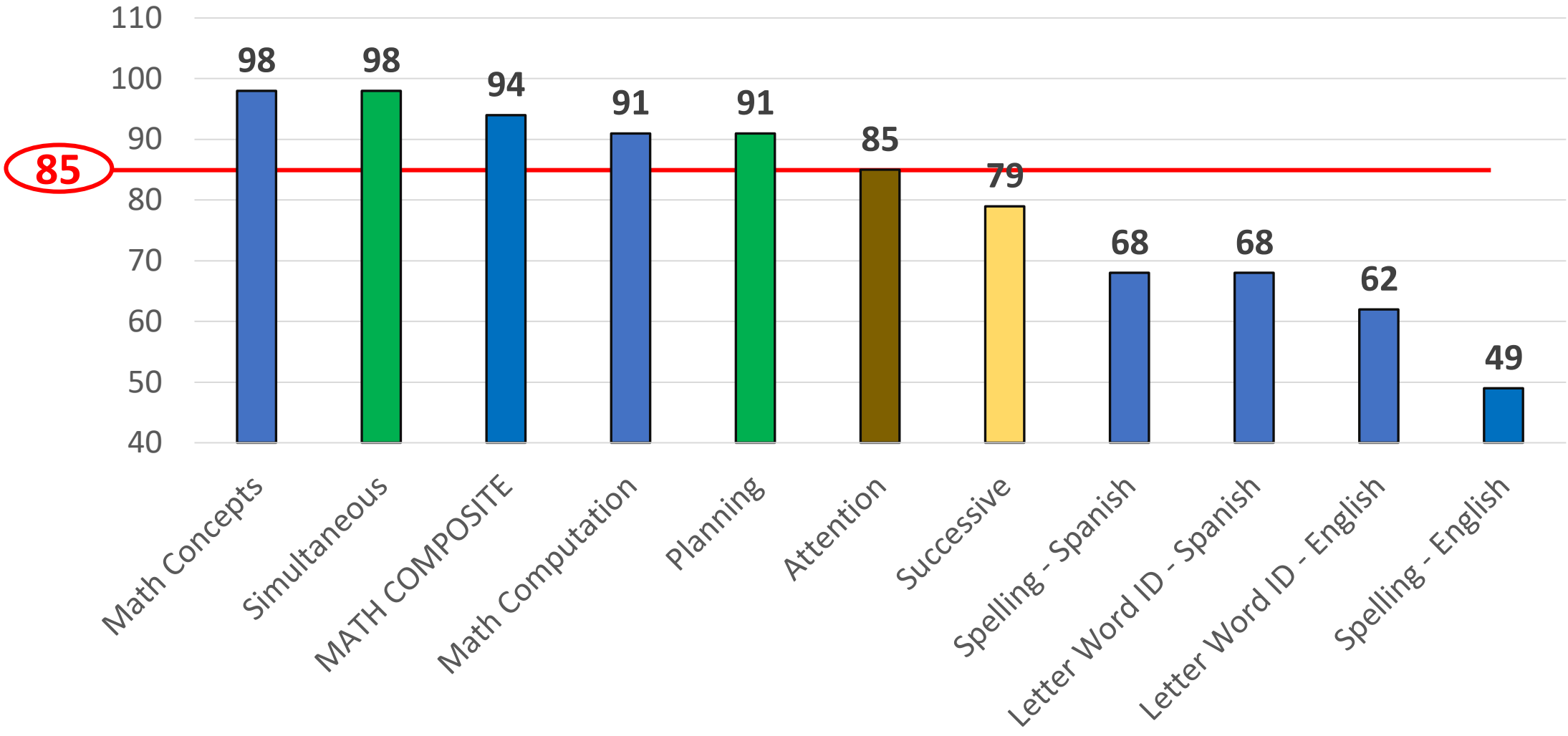
Differences Between PASS Scale Standard Scores and the Student's Average PASS Score (p = .05) for the CAS2 12-Subtest EXTENDED battery.

Cognitive Assessment System-2		PASS Mean & Differences:	Significantly Different (at p = .05) from PASS Mean?	Strength or Weakness
PASS Scales	**Standard Score**	88.3		
Planning	**91**	2.7	no	
Simultaneous	**98**	9.7	yes	
Attention	**85**	-3.3	no	
Successive	**79**	-9.3	yes	Weakness



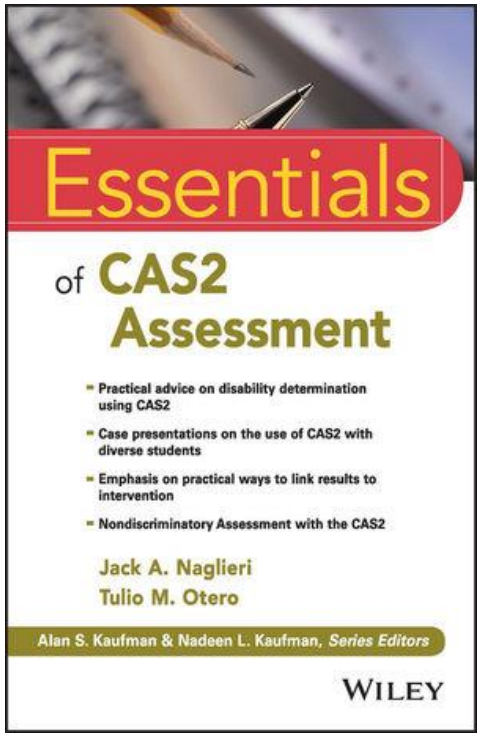


Achievement & CAS2 Scores for Alex



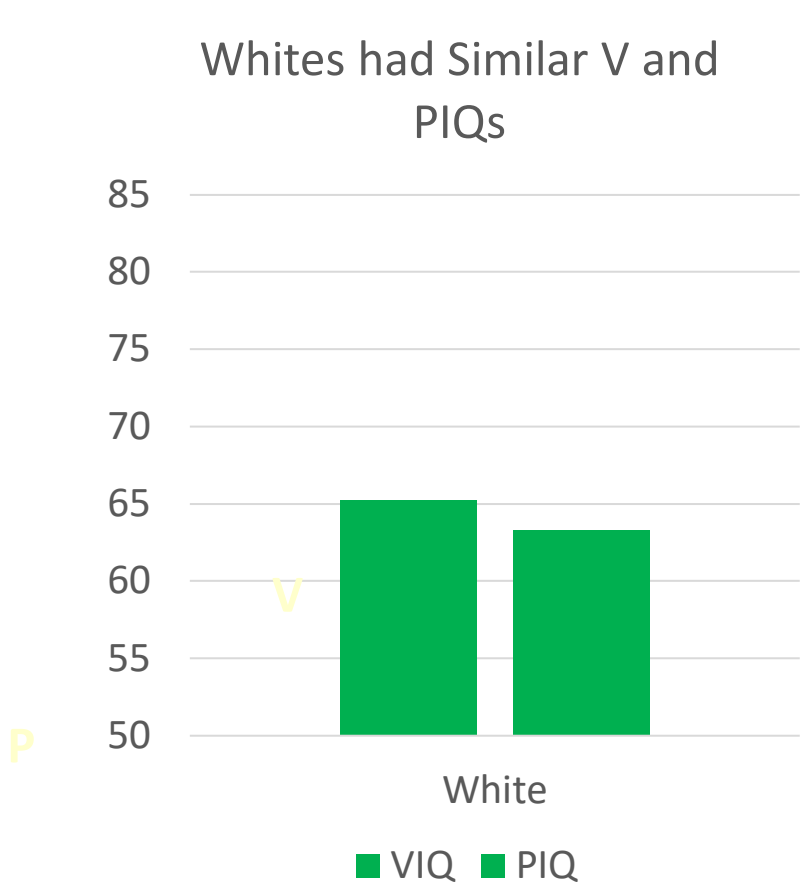
Alex and PASS (by Dr. Otero)

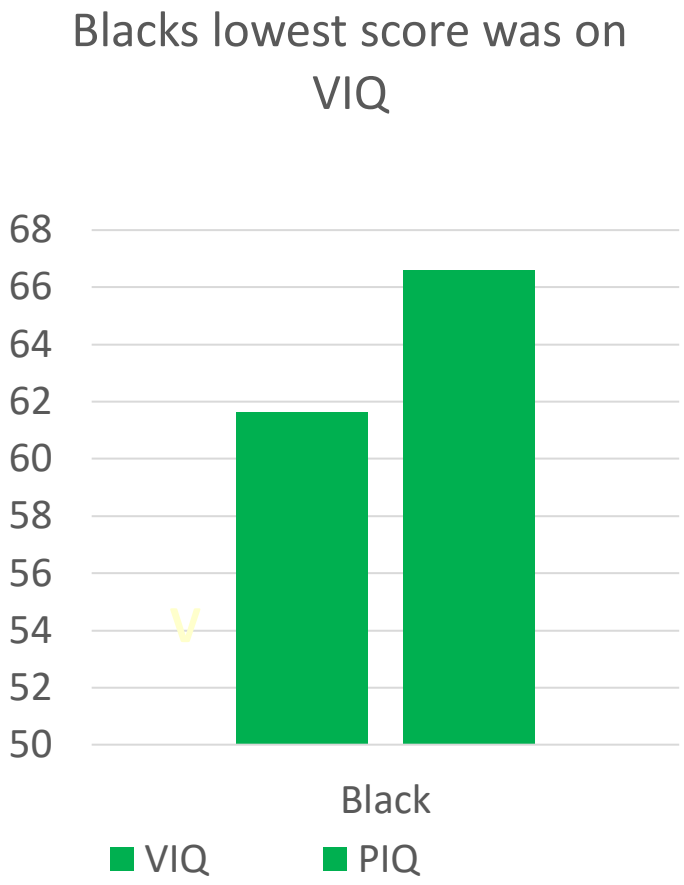
- Alex's profile is revealing
- He has good processing scores:
  - Simultaneous = 91 and Planning = 98
- He has a disorder in one or more of the basic psychological processes
  - Attention = 85 and Successive = 79
- Using the Discrepancy Consistency Method (1999, 2017) he meets criteria for a learning disability (see Naglieri & Otero, 2017).

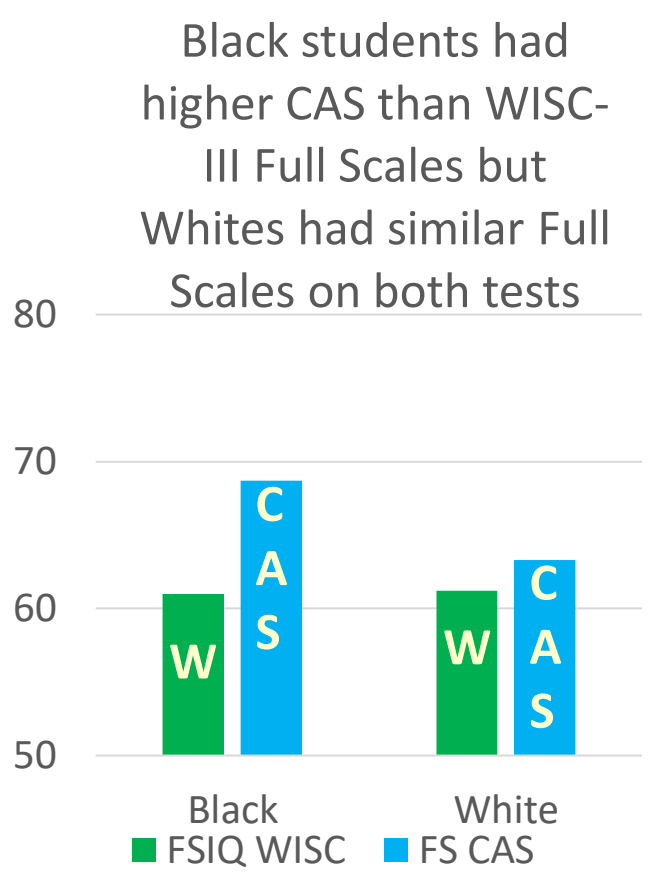


WISC-III and CAS Scores for Black and White Students

Naglieri, J. A., & Rojahn, J. (2001). Evaluation of African-American and White Children in Special Education Programs for Children With Mental Retardation Using the WISC-III and Cognitive Assessment System. *American Journal of Mental Retardation, 106,* 359-367





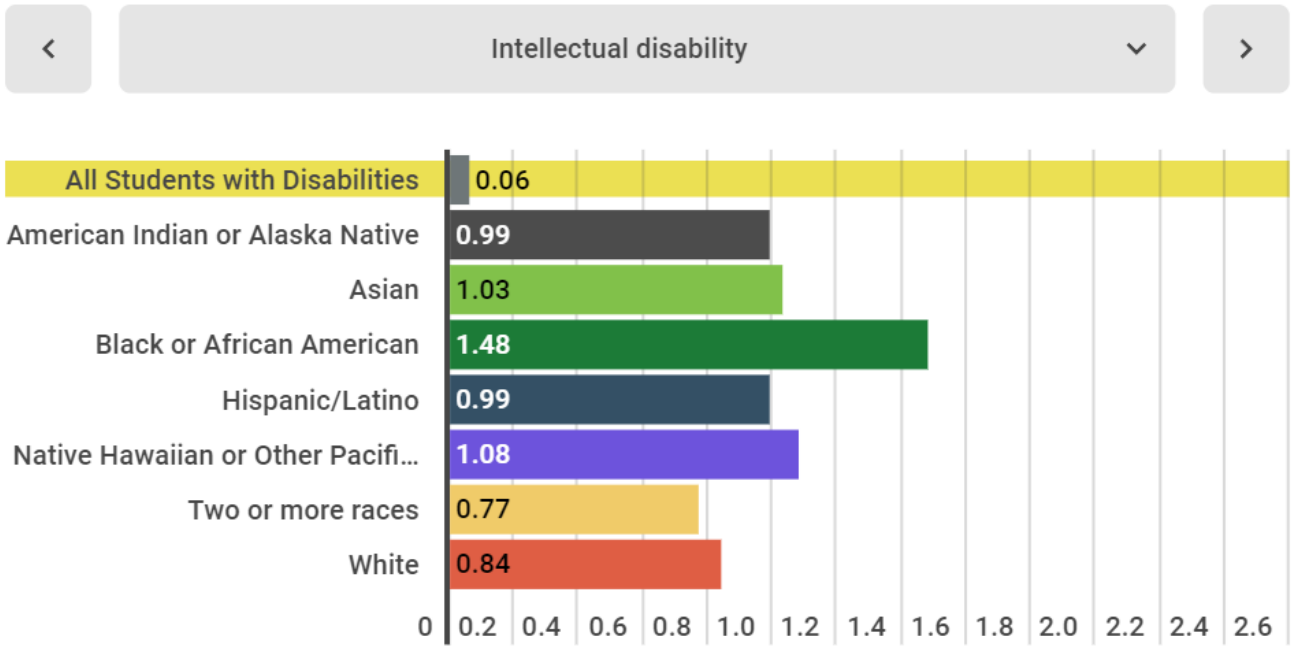


OSEP Office of Special Education Programs
Office of Special Education and Rehabilitative Services

OSEP Fast Facts: Race and Ethnicity of Children with Disabilities Served under IDEA Part B

For the purposes of this fact sheet, racial ethnic groups are defined in the IDEA Part B Child Count and Educational Environments for School Year 2019-2020, OSEP Data Documentation. https://www2.ed.gov/programs/osepidea/618-data/collection-documentation/data-documentation-files/part-b/child-count-and-educational-environment/idea-partb-childcountandedenvironment-2019-20.pdf

Risk Ratio of Students with Disabilities by Disability Category and by Specific Race and Ethnicity, Ages 5 (in kindergarten) through 21: SY 2019-20



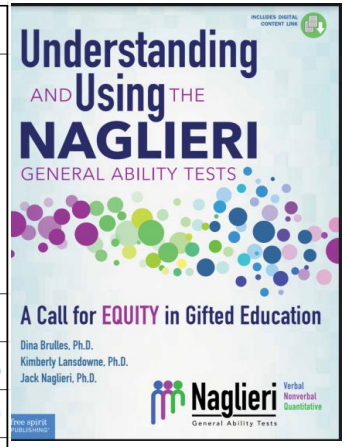
The relative risk ratio of students with disabilities under IDEA by race and Ethnicity is the probability of a student with a disability being identified for intellectual disability. The higher the number, the larger the probability. Nationally, **Black Students are 1.48 times more likely to be identified with intellectual disability** compared to all students with disabilities.

https://sites.ed.gov/idea/osep-fast-facts-race-and-ethnicity-of-children-with-disabilities-served-under-idea-part-b/

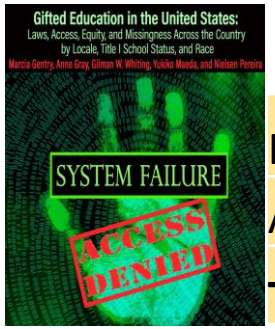
https://ldaamerica.org/lda_today/disproportionate-identification-of-students-of-color-in-special-education/

Numbers of Gifted Students Missed = 1,235,434

Total Enrollments by Race and Ethnicity as of 2020.				
	N in Public Education K-12 in 2020	N Potentially Gifted (8%; 92 %tile)	N Students in gifted programs	Difference Between Potential and Identified
White	23,834,458	1,906,757	1,937,350	30,593
Black	7,754,506	620,360	330,774	-289,586
Hispanic	14,337,467	1,146,997	600,498	-546,499
Native American/ Alaska Native	484,766	38,781	27,712	-11,069
Two or More Races	1,641,817	131,345	105,371	-25,974
Total Non-Whites	24,218,556	1,937,484	1,064,355	-873,129



873,129 +



Percent of Schools that do not Identify	41.5%
Additional non-white gifted students = 41.5% of 873,129	N = 362,305
Total non-white gifted students missed	**N = 1,235,434**

What is the Practical Impact?

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


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

Core Group Activity

QUESTIONS: Do You Agree that Vocabulary = IQ?

Is it Intelligence or Achievement

What are the Implications?

Ideas to Consider

My Journey

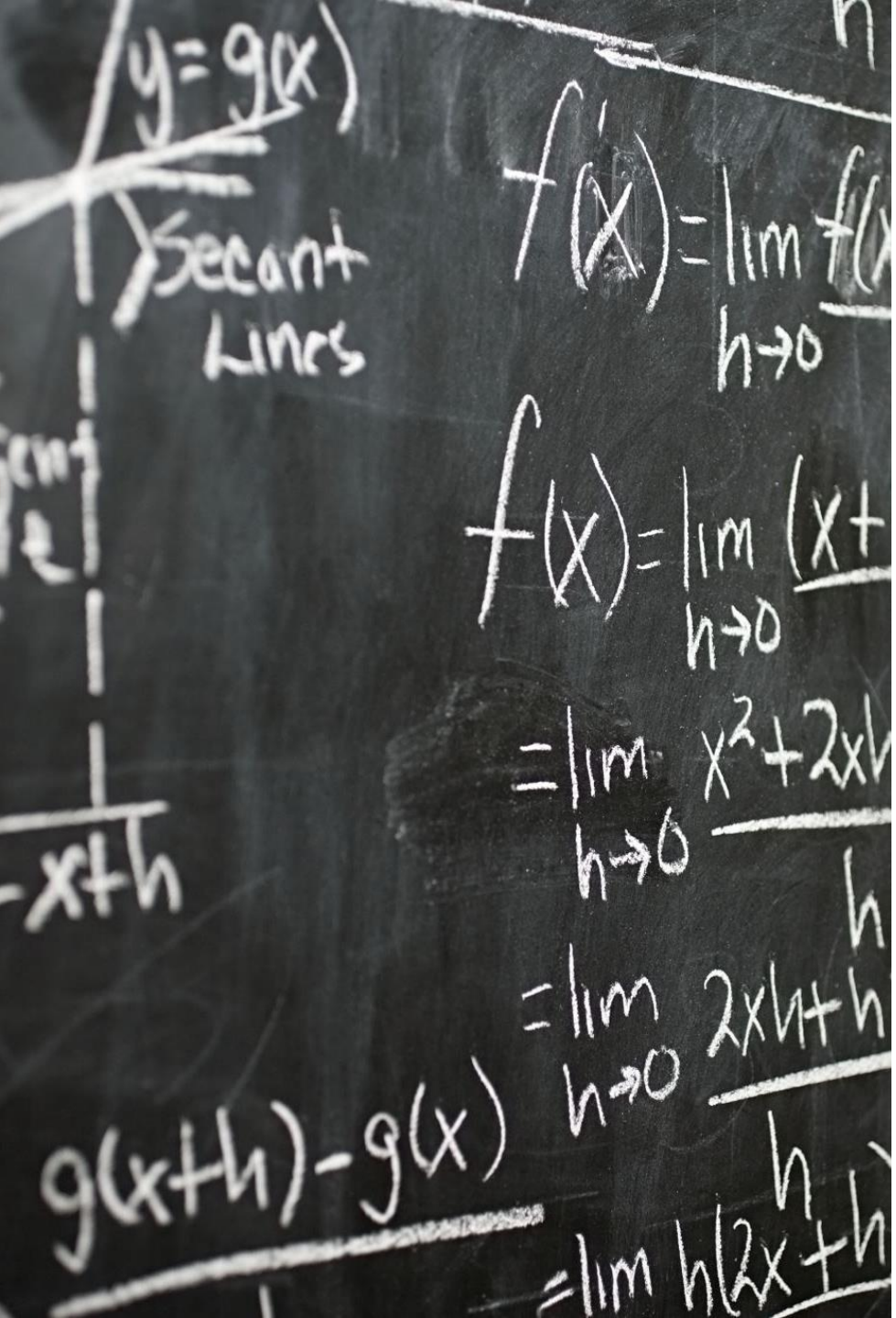
Historical Context

Testing My Hypothesis About Intelligence Tests

Research support for PASS

Closing remarks

Intelligence Redefined



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

Create general intelligence tests that do not rely on knowledge!

Can Traditional Intelligence Test of General Ability be Equitable?

How to measure ‘Thinking’ with minimal influence of ‘Knowing’

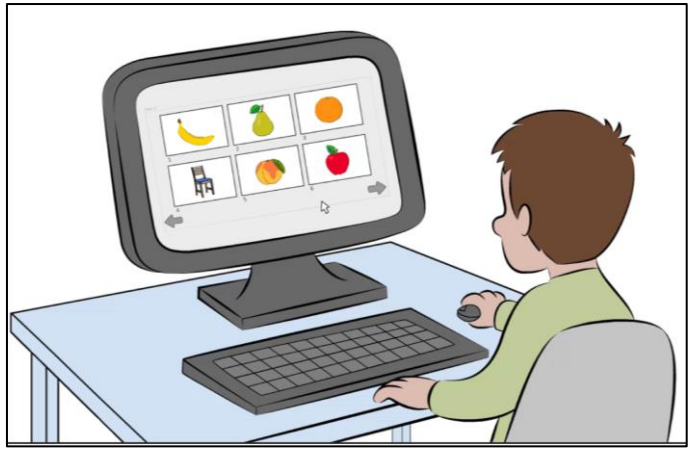
Measure General Ability Equitably Using the *Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative* (Naglieri, Brulles & Lansdowne, 2022)

Naglieri General Ability Tests

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

Naglieri General Ability Tests — Verbal Nonverbal Quantitative

- We **explicitly made tests for equitable identification** of students from diverse cultural, linguistic, or socioeconomic backgrounds using the traditional Verbal, Nonverbal and Quantitative formats to **measure general ability**:
  - Animated instructions remove the need for verbal comprehension of directions,
  - Test questions that do not require academic knowledge,
  - Verbal and Quantitative test questions that can be solved using any language,
  - A multiple-choice response removes the need for verbal expression.

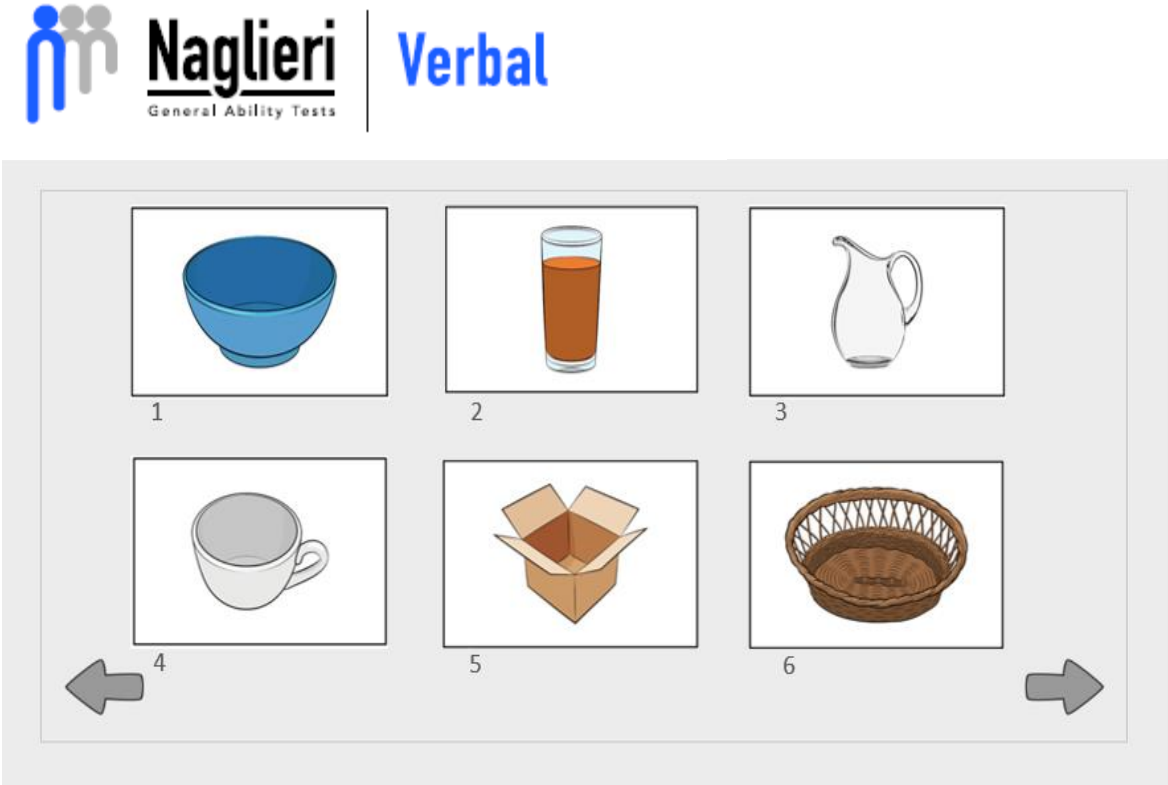


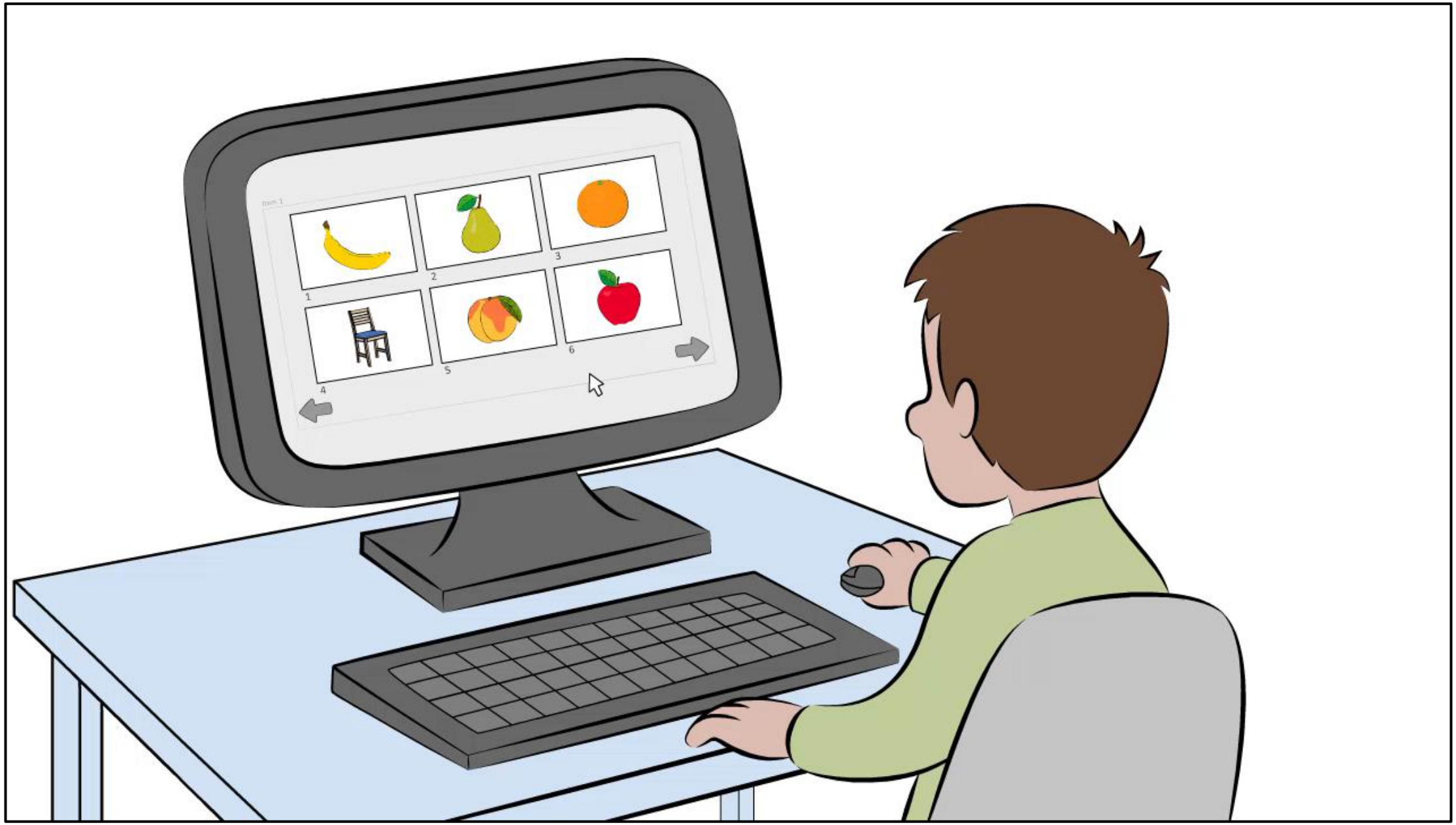
Naglieri General Ability Test – Verbal
(Naglieri & Brulles)

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

The student's task is to identify which of the six pictures does *not* represent the verbal concept shared by the other five.

The test items require close examination of *the relationships among the pictures*.



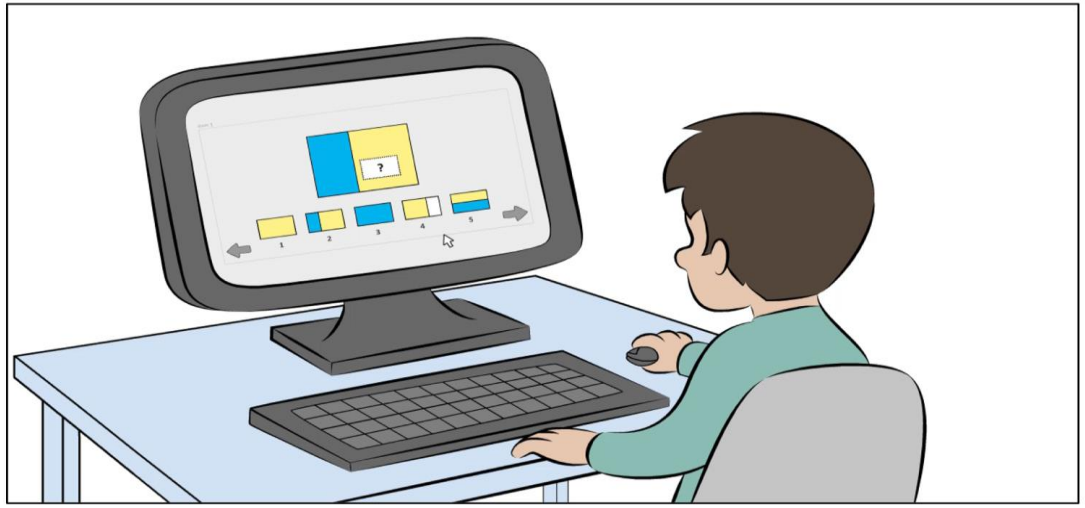


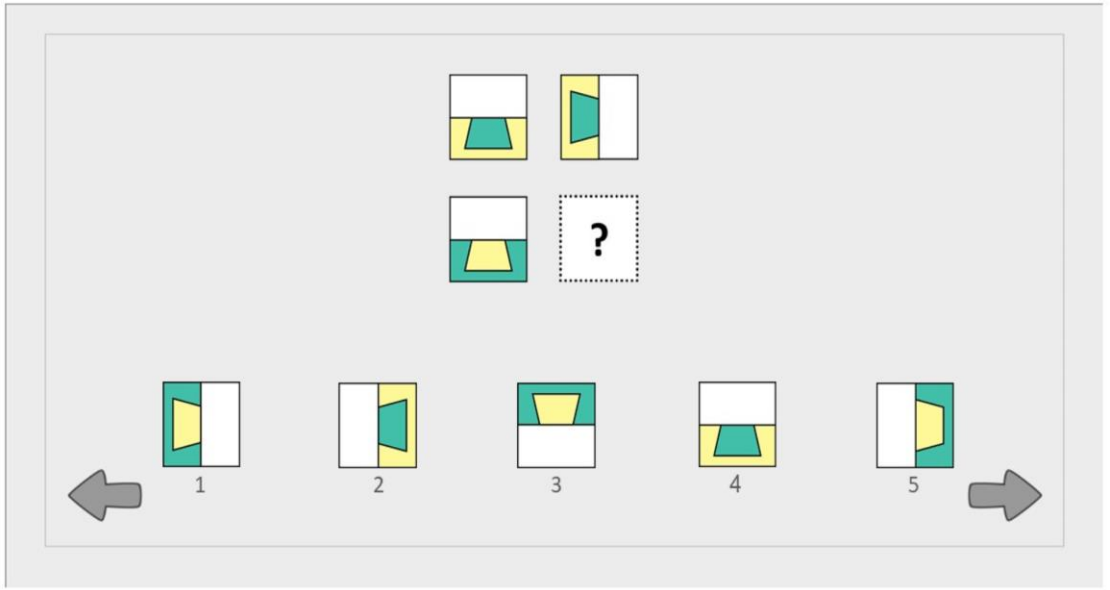
Naglieri General Ability Test – Nonverbal (Naglieri, 2022)

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

The structure of the items varies, but all items require that the student decipher the logic behind *the relationships among the shapes*, sequences, spatial orientations, patterns, and other distinguishing characteristics.

This nonverbal test is conceptually similar to the NNAT3 but it contains many NEW kinds of items not included before.





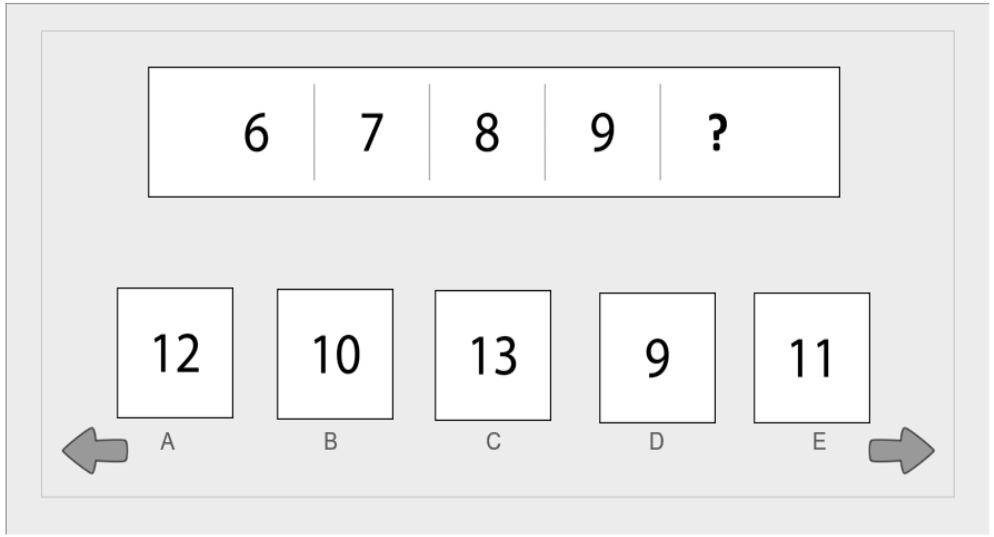
Naglieri General Ability Test – Quantitative
(Naglieri & Lansdowne)

The Naglieri–Q **measures general ability** using numbers and/or symbols. Students must decipher the logic behind *the relationships among the numbers and symbols* to identify the answer.

Items require the student to determine equivalency of simple quantities, analyze a matrix of numbers and solve mathematical sequences,

Items require minimal academic knowledge, and the calculation requirements are simple.

The items have no verbal requirements (i.e., no math word problems) so that they can be solved regardless of the language used by the student.

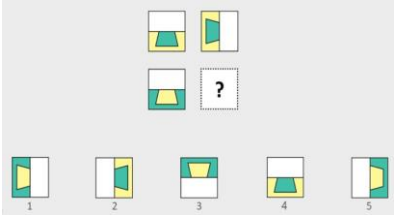


A Pilot Study of the Effects of Race, Ethnicity, Gender and Parental Education on the *Naglieri General Ability Tests: Verbal, Nonverbal, and Quantitative*

Research Evidence of Equity

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.

NONVERBAL TEST

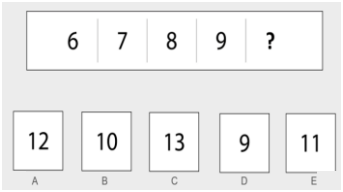


- N= 3,630 Sample closely matches the US population on key demographics
- **No GENDER differences** found between **males** and **females** for raw score across all forms
- **No RACE/ETHNICITY differences** among **White, Black, & Hispanic** for raw score across all forms
- **No PARENTIAL EDUCATIONAL 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

VERBAL TEST

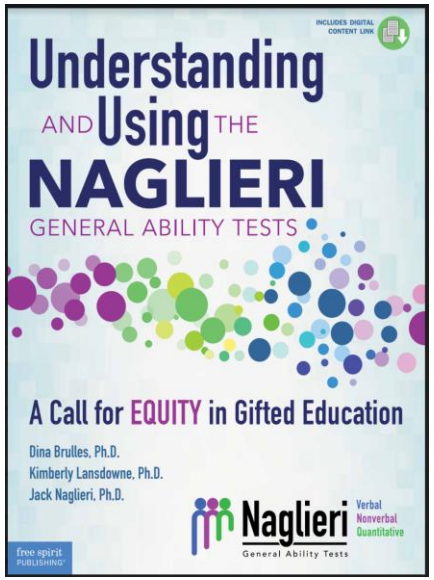
- N= 2,482 Sample closely matches the US population on key demographics
- **No GENDER differences** found between **males** and **females** for raw score across all forms
- **No RACE/ETHNICITY differences** among **White, Black, & Hispanic** for raw score across all forms
- **No PARENTIAL EDUCATIONAL differences** among five education levels (No high school diploma; High School graduate; Some college/Associate's degree; Bachelor's degree; Graduate/professional degree) for raw score across all forms

QUANTITATIVE TEST



- N= 2,841 Sample closely matches the US population on key demographics
- **No GENDER differences** found between **males** and **females** for raw score across all forms
- **No RACE/ETHNICITY differences** among **White, Black, & Hispanic** for raw score across all forms
- **No PARENTIAL EDUCATIONAL 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

Race and Ethnic Differences by Ability Test



***Tests of General* Ability Using Verbal, Nonverbal and Quantitative test items**

	By Race	By Ethnicity
Tests that require knowledge	**Mn = 9.5**	**Mn = 5.2**
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
CogAT7 - Verbal	6.6	5.3
CogAT7-Quantitative	5.6	3.6
CogAT- Nonverbal	6.4	2.9
CogAT-Total (V, Q & NV)	7.0	4.5
WISC-V (statistical controls normative sample)	8.7	
Tests that require minimal knowledge	**Mn = 4.3**	**Mn = 2.9**
K-ABC (normative sample)	7.0	
K-ABC (matched samples)	6.1	
KABC-II (adjusted for gender & SES)	6.7	5.4
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: 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 and Oakland (2006) and ethnic differences by Sotelo-Dynega, Ortiz, Flanagan, and Chaplin (2013); CogAT7 by Carman, Walther and Bartsch (2018) and Lohman (2016), WISC-V by Kaufman, Raiford, and Coalson (2016); Kaufman Assessment Battery for Children-II by Lichtenberger, Volker, Kaufman & Kaufman, (2006); CAS by Naglieri, Rojahn, Matto, and Aquilino (2005); CAS-2 and CAS2:Brief by Naglieri, Das, and Goldstein, 2014a and 2014b; Naglieri Nonverbal Ability Test by Naglieri and Ronning (2000), and Naglieri General Ability Tests by Naglieri, Brulles, and Lansdowne (2022).

See 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 for more details.

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

A Neurocognitive Test Measures Thinking not Knowing

What does the examinee have to **know** to complete a task?

- This is dependent on *instruction*

How does the examinee have to **think** to complete a task?

- This is dependent on the *brain – 'basic psychological processes'*
- Some thinking involves executive function and some does not

WE CAN DO BETTER

Your Thoughts or Questions

The Naglieri General Ability Tests: Verbal, Nonverbal and Quantitative

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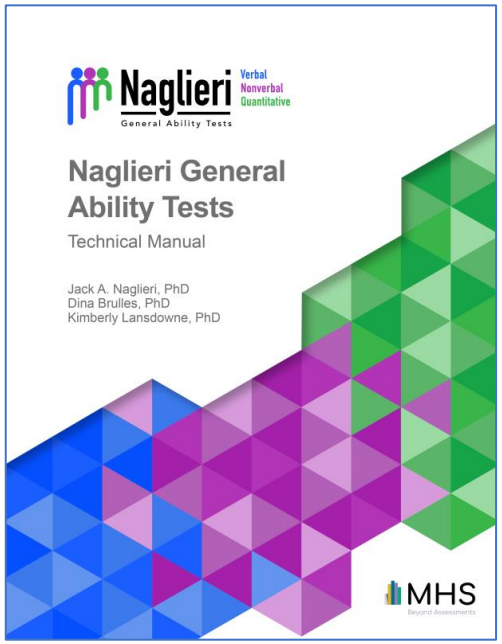
Learn More
NaglieriGiftedTests.com



Ideas to Consider

My Journey

Historical Context

Testing My Hypothesis About Intelligence Tests

PASS Theory and Measurement

Closing remarks

Intelligence Redefined

Intelligence must be measured using tests that require little knowledge

AND – we need MORE than tests of General Ability

Intelligence as Neurocognitive Functions

- In the meeting with JP Das (February 11, 1984) we proposed that intelligence was better defined as neurocognitive processes, and we began development of the **C**ognitive **A**ssessment **S**ystem (Naglieri & Das, 1997).

➢ We conceptualized intelligence as Planning, Attention, Simultaneous, and Successive (PASS) neurocognitive processes based on Luria's concepts of brain function.

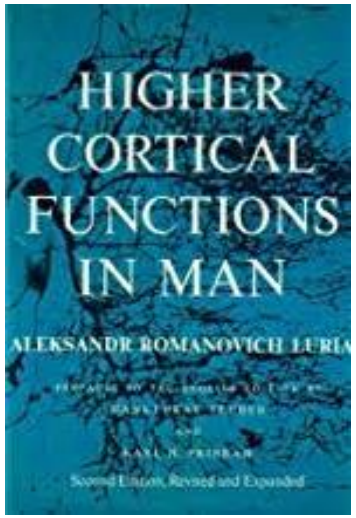
We Wanted to measure Thinking (PASS) not Knowing

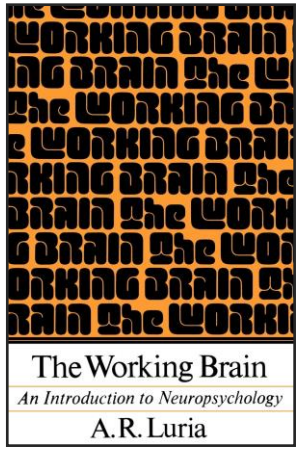
- What does the student have to ***know*** to complete a task?
  - ***This is dependent on educational opportunity (e.g., Vocabulary, Arithmetic, reading skills, etc.)***

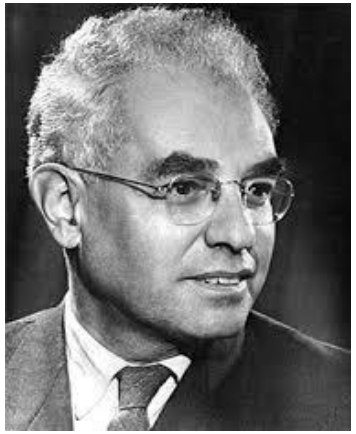
How does the student have to ***think*** to complete a task?

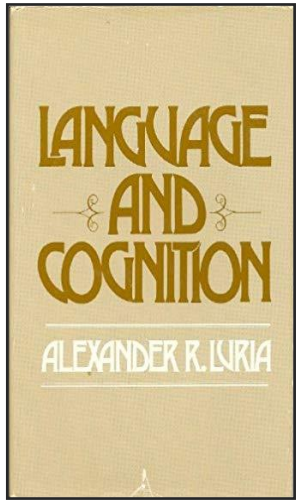
This is dependent on the brain's neurocognitive processes

PASS Neurocognitive Theory









- **P**lanning = THINKING ABOUT HOW TO DO WHAT YOU DECIDE TO DO
- **A**ttention = BEING ALERT AND RESISTING DISTRACTIONS
- **S**imultaneous = UNDERSTANDING THE RELATIONSHIPS AMONG THINGS AND IDEAS
- **S**uccessive = WORKING WITH INFORMATION IN A SEQUENCE

PASS = 'basic psychological processes'

NOTE: Easy to understand concepts!

PASS Provides a Common Language

- Psychologists, teachers, parents, and students can all use a common language to describe these four abilities with easy-to-understand concepts of intelligence

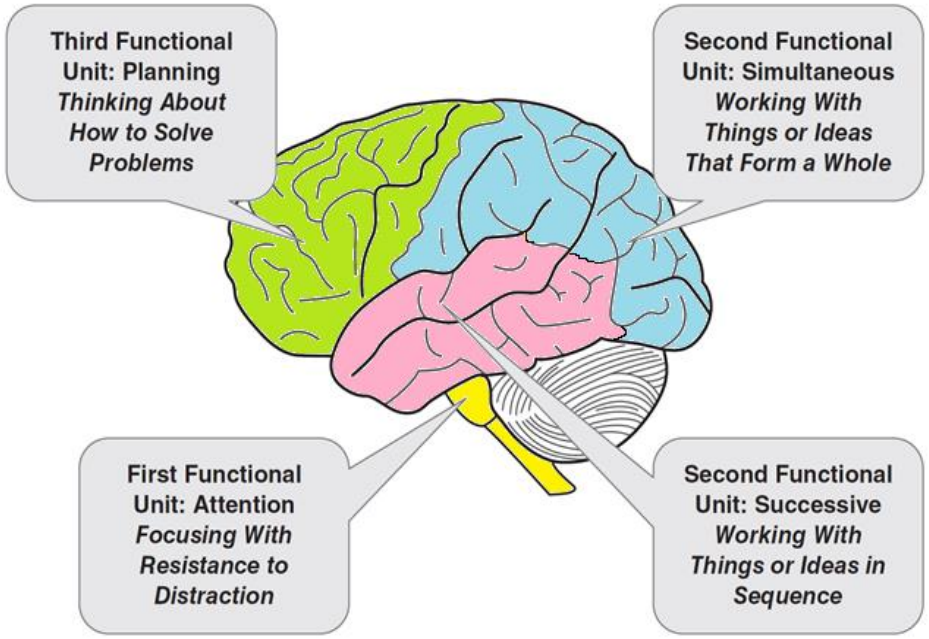


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

Frankie was struggling in school at age 11

- Referred by parents after a history of reading and self esteem problems
- High level of anxiety
  - he was too anxious to look closely at the words, and he would rather get the task completed and move on.
  - Frankie could not attend to the details of the sequence of letters for correct spelling, and the order of sound–symbol associations

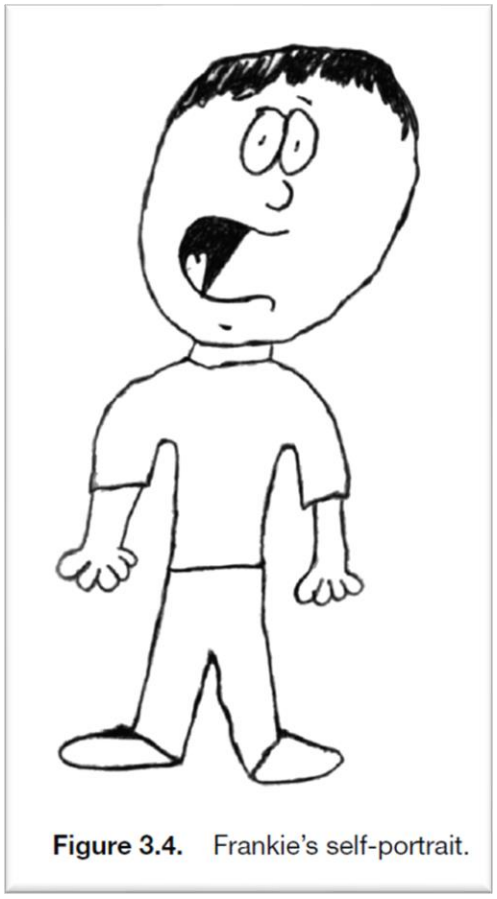
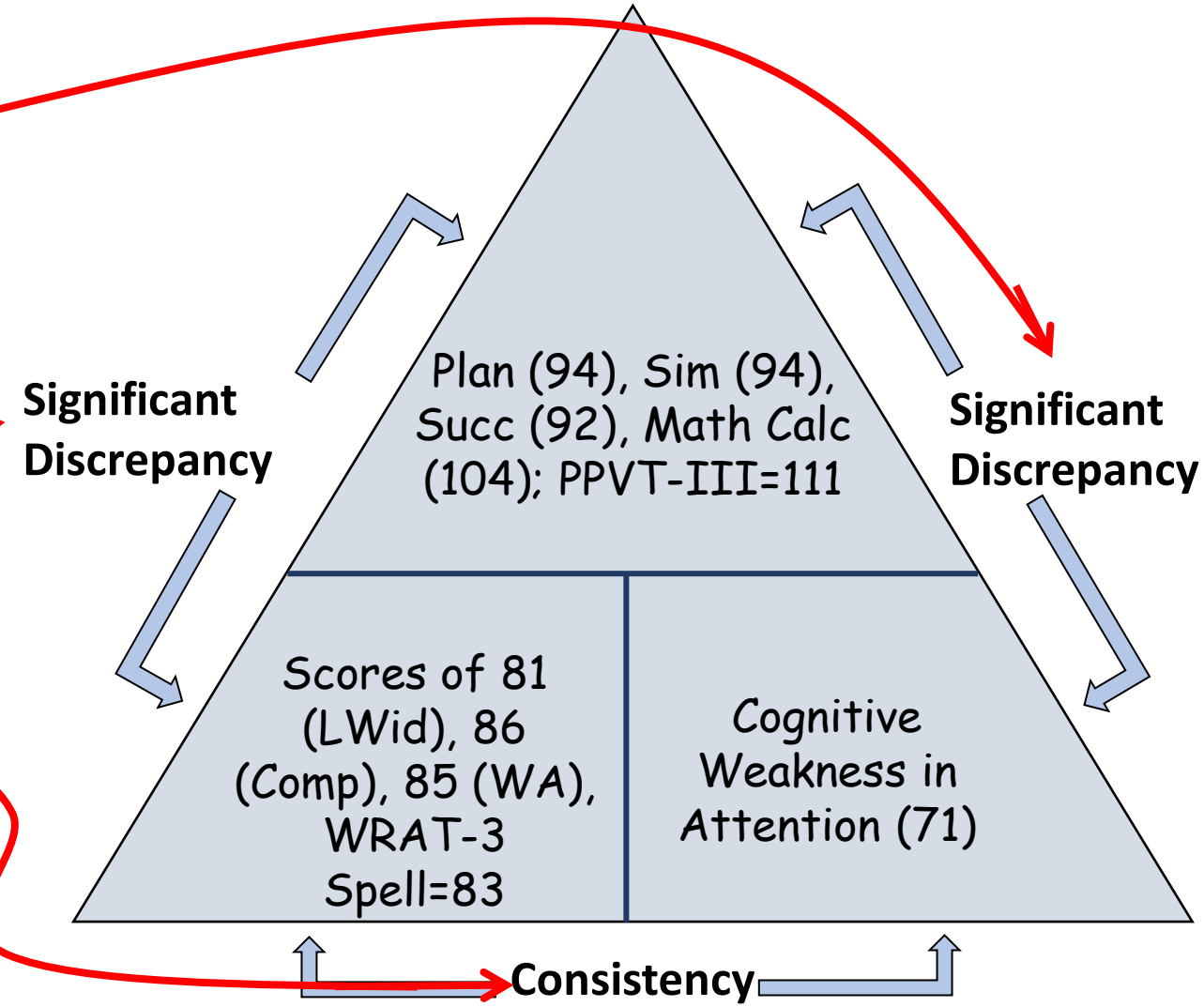


Figure 3.4. Frankie's self-portrait.

Frankie's Discrepancy Consistency Results

- **Discrepancy** between high and low processing scores
- **Discrepancy** between high processing and low achievement
- **Consistency** between low processing and low achievement



Frankie: Then and Now

- I informed Frankie of his PASS scores, and everything changed
- He learned to manage his attention problem by using good Planning which helped him
  - recognize when he is off task
  - Think of possible ways to manage his attention
  - recognize when he needed a change in the environment to reduce distractions
- Perhaps most importantly: He was given hope – that he could succeed

- Is married and has a Frankie graduated High School and went to college
- few children
- He is a graphic designer
- He uses his knowledge and good Planning, Simultaneous and Successive processing to manage any obstacles he may still have with attention

Neuropsychological Correlates of PASS

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

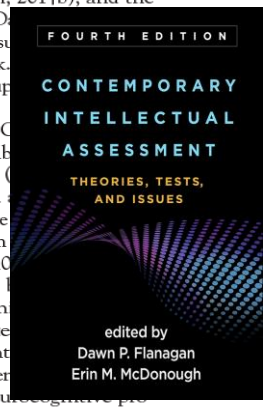
CHAPTER 6

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: Espanol (Naglieri, Moreno, & Otero, 2017), the CAS2: Brief (Naglieri, Das, & Goldstein, 2014b), and the CAS2: Rating Scale (Naglieri, D
2014c). We describe these measu
sively in Chapter 15 of this book.
we focus on the PASS theory up
these measures are based.

The PASS theory and the C
neurocognitive perspective on ab
from that of traditional batteries (
in part, subtests requiring verbal
knowledge). These batteries have
the Army mental testing program
akum and Yerkes (1920) almost 10
PASS theory, as operationalized
CAS2, has created an opportun
field of intelligence and ability te
emphasizing (1) that a *test* of int
be based on a *theory* of intelliger
the test should measure basic neu
cesses defined by the intellectual demands of the test, not the content of the questions. Naglieri and



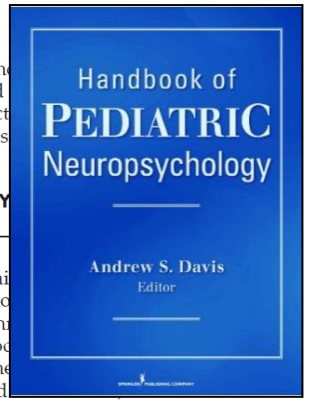
28 Cognitive Assessment System: Redefining Intelligence From a Neuropsychological Perspective

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 access brain damage. Neuropsychological tests, however,

Such tools should not only evaluate the un
cesses necessary for efficient thinking and
also provide for the development of effect
tions and address the question of prognosis



FROM NEUROPSYCHOLOGY THEORY TO ASSESSMENT

Luria's theoretical account of dynamic brai
perhaps one of the most complete (Lewando
2008). Luria conceptualized four intercon
of brain–behavior relationships and neuro
orders that the clinician needs to know: the
the brain, the functional organization based
syndromes and impairments arising in brain disorders, and clinical methods of assessment (Korkman, 1999). His theoretical formulations, methods, and ideas are articulated in works such as *Higher cortical functions in man* (1966, 1980) and *The Working Brain* (1973). Luria viewed the brain as a functional mosaic, the parts of which interact in dif-

PASS Theory Based on Brain Function – Planning

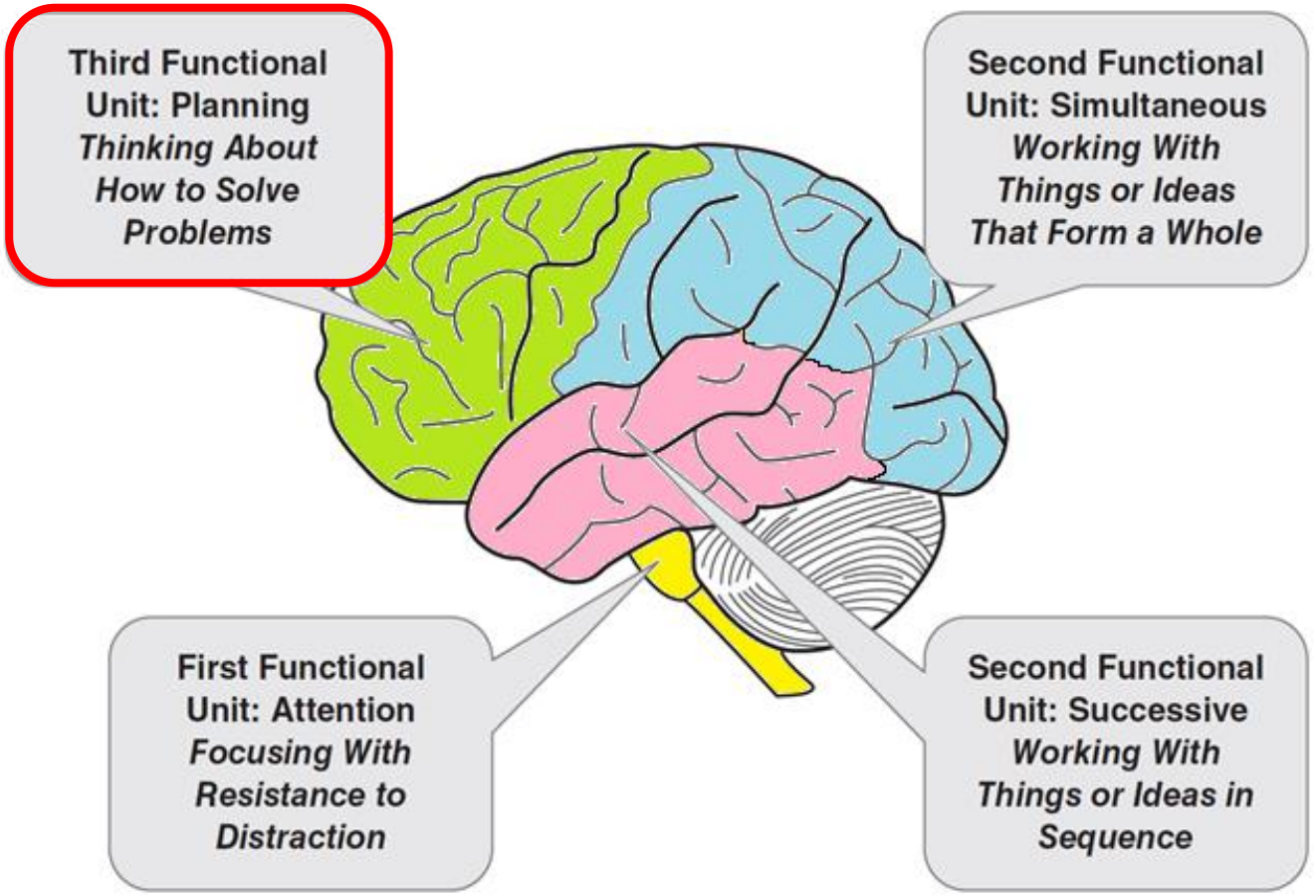


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

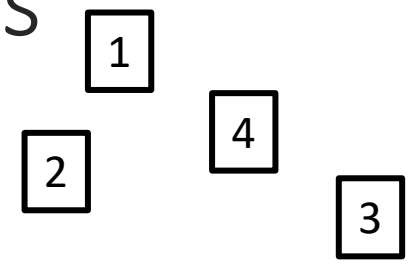
PASS Theory: Planning

- 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

Planning Subtests

Planned Codes

Planned Connections



Planned Number Matching

5176	5761	5167	1576	5176	1567

THINKING REQUIRED: Each Planning Subtest measures the extent to which a student can examine a task and devise a strategy to complete the task in an efficient manner.

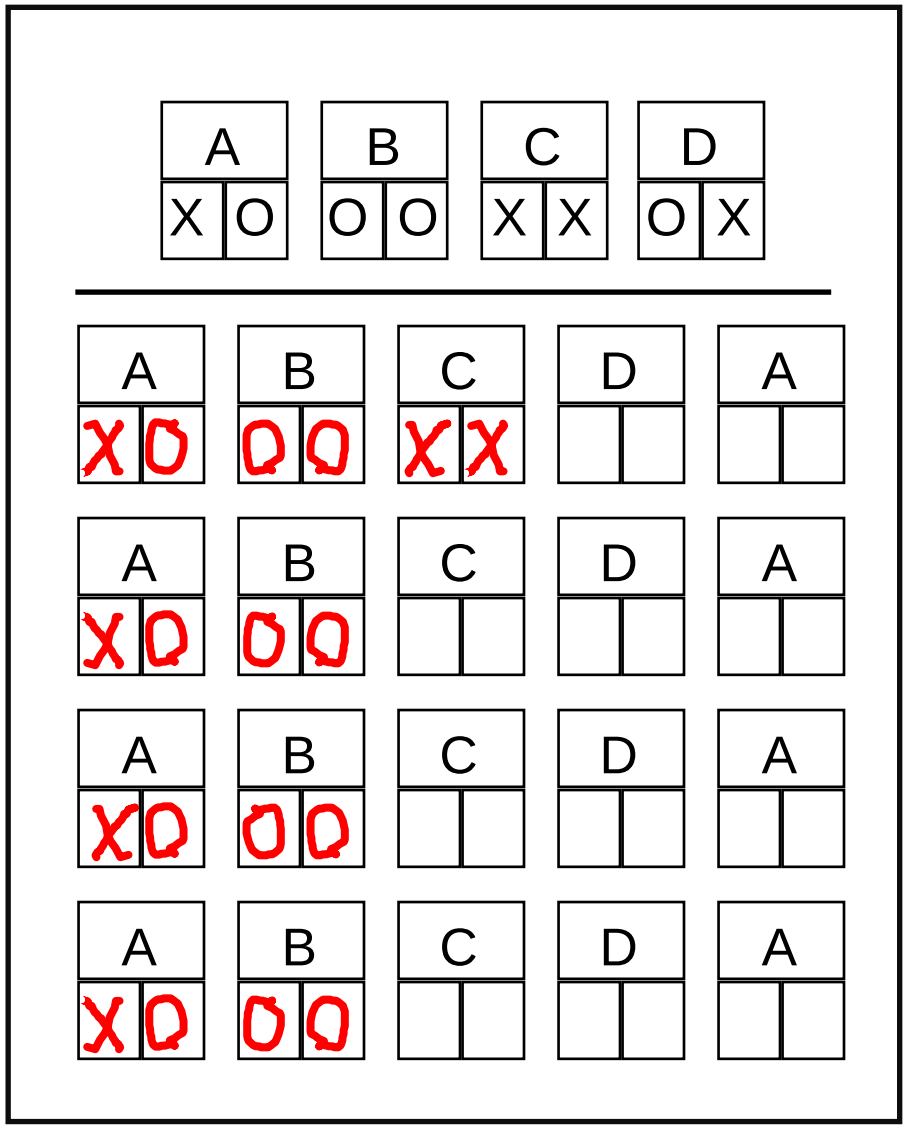
Planning Behaviors

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

___ + ___ + ___ + ___ + ___ = ☐

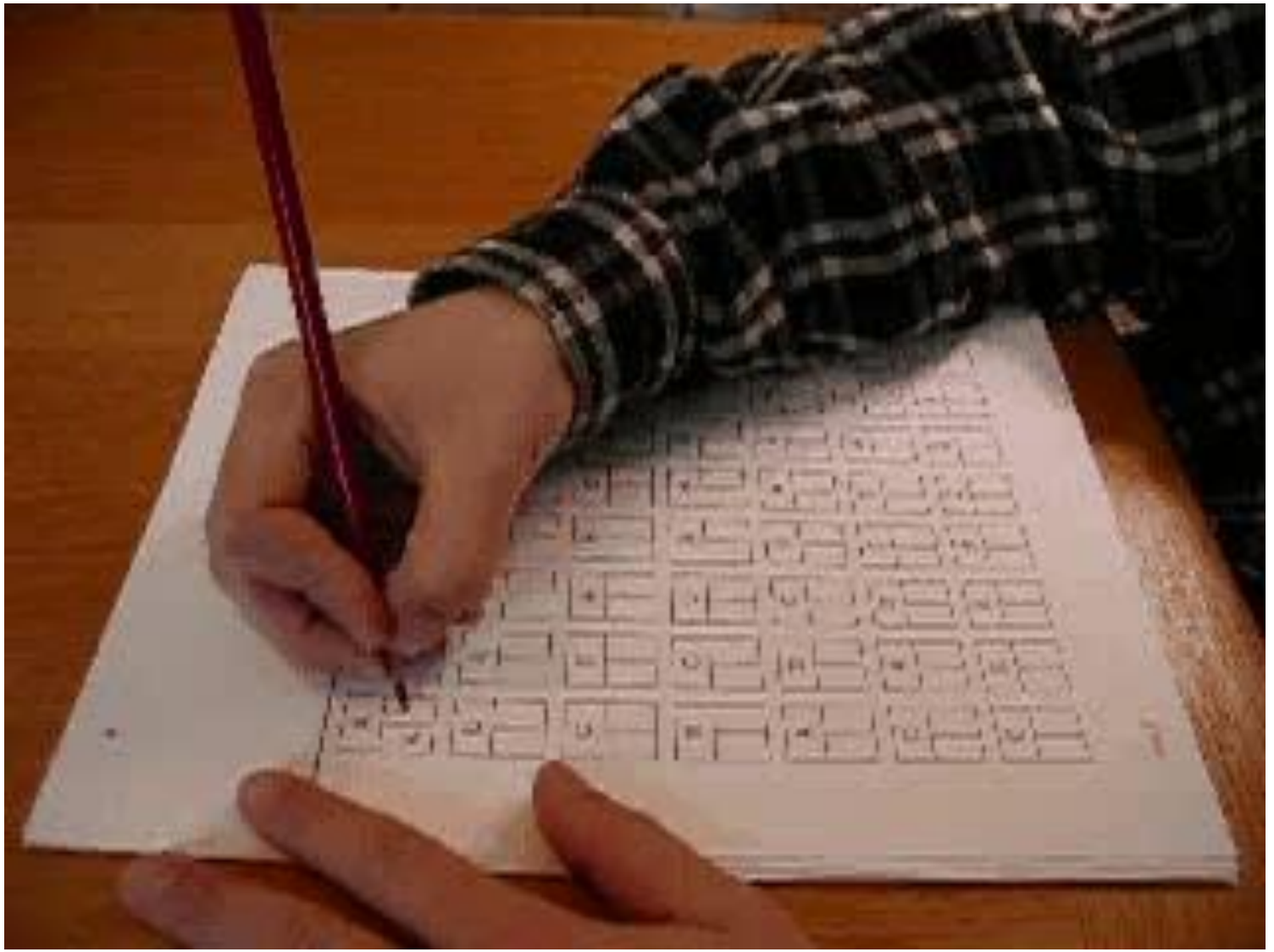
Planning Raw Score



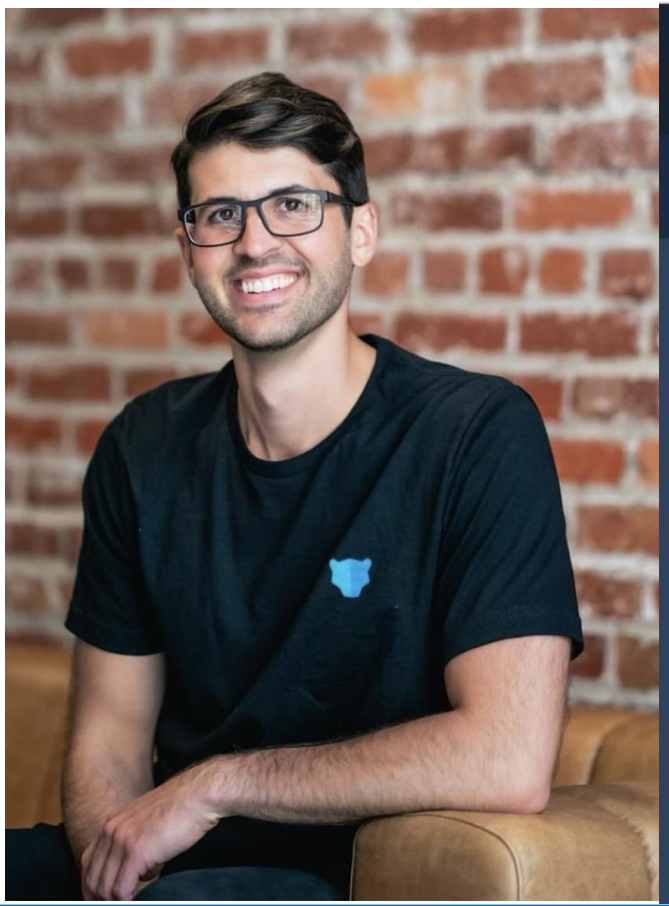
Planned Codes Page 1

- Jack Jr. at age 5
- He filled in the codes in the empty boxes A's then B's then C
- Note, examinees are told: "You can do it any way you want"

Planned Codes Page 2 Jack Jr. age 10



20 Years Later Planning is the Key to Success



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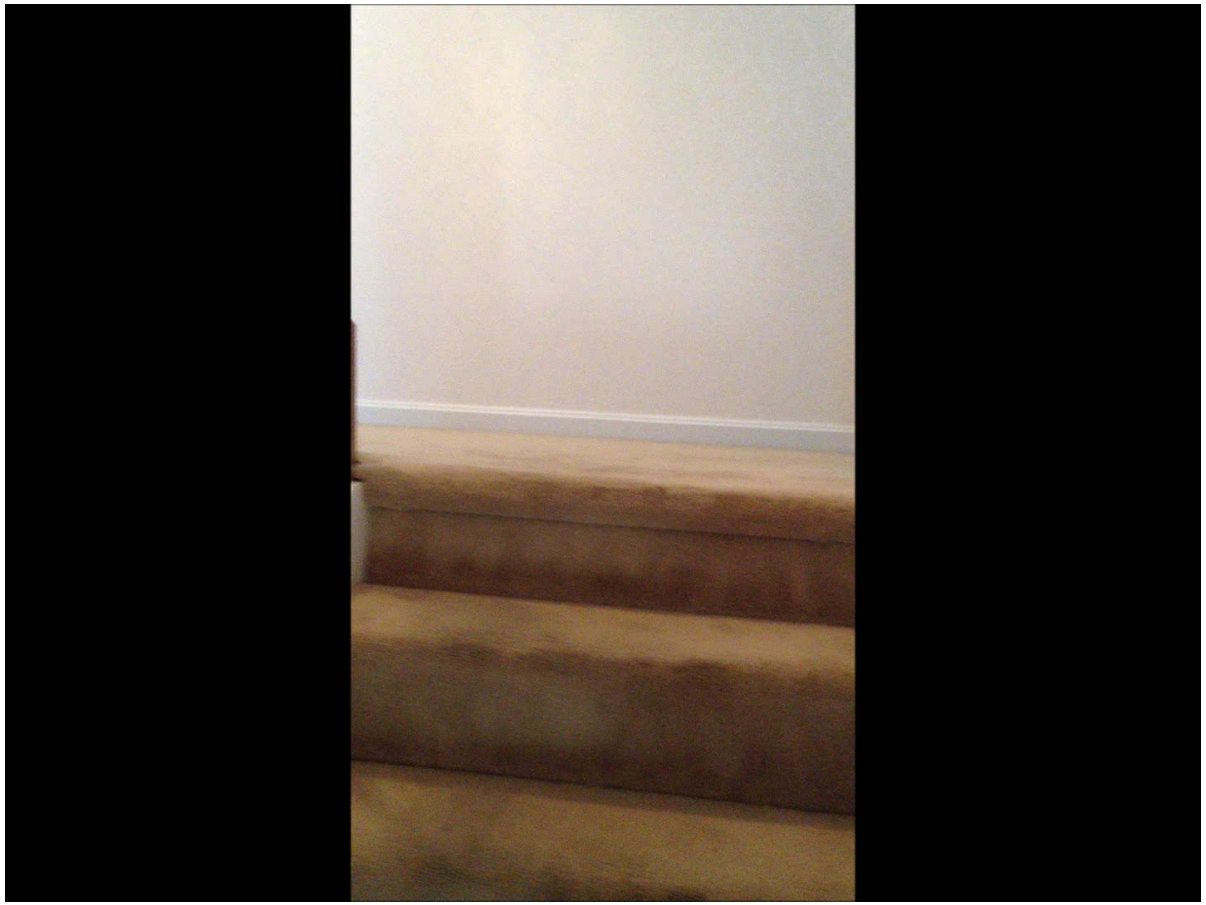
Automated Detection and Response with Panther

Jack Naglieri
8 min read

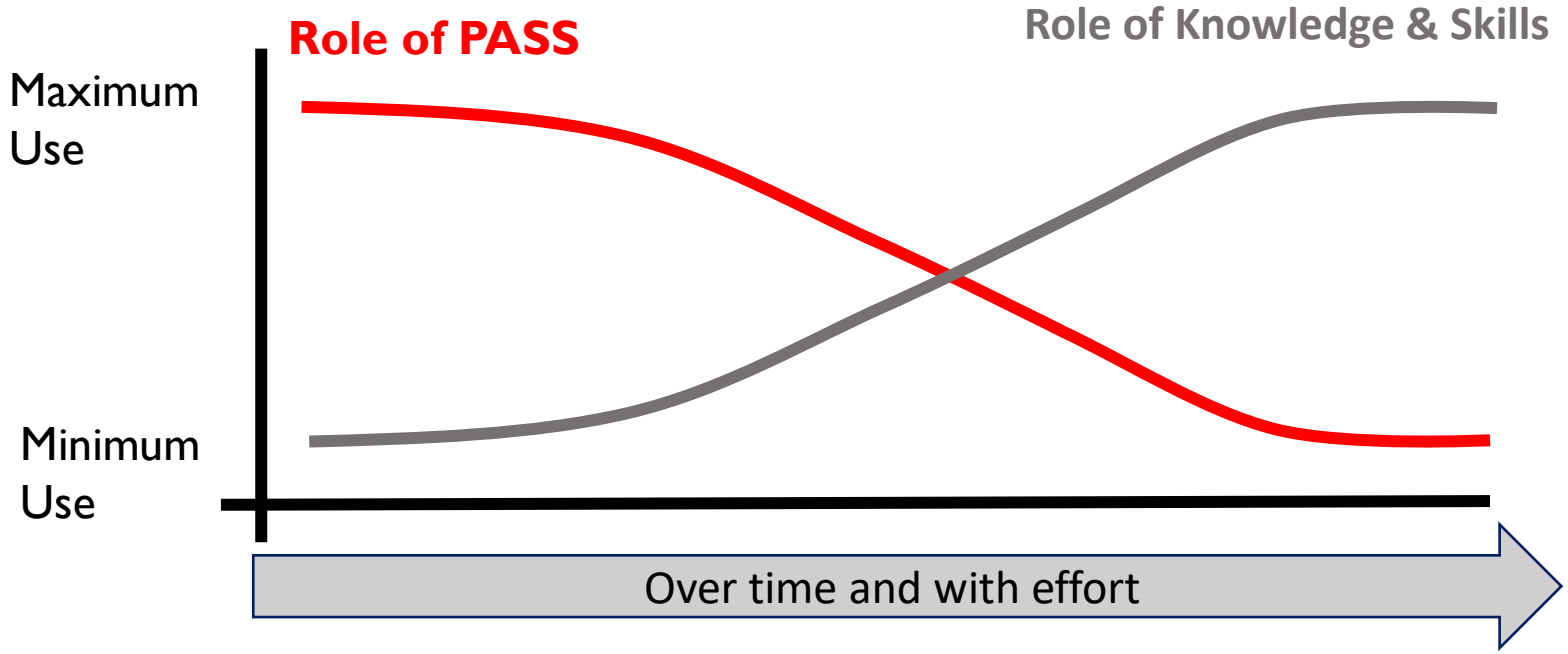
A 13 month old's Plan

At 19 months Planning & Knowledge



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

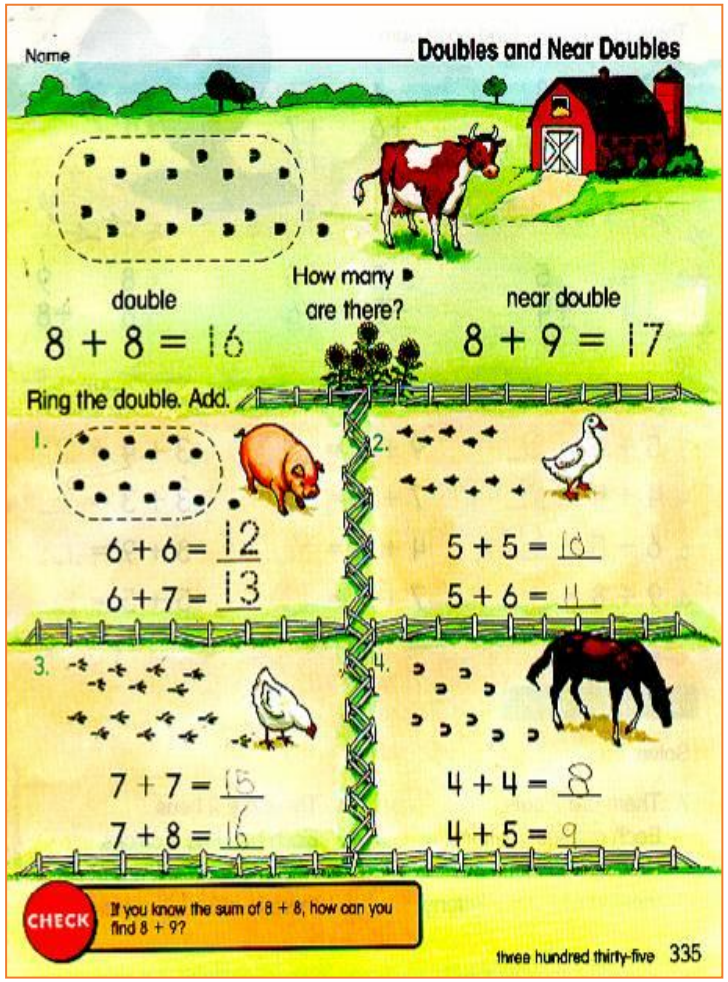


Note: A **skill** is the ability to do something well with minimal effort (thinking)

Planning (EF) and Skills

- Given that Planning (EF) demands intentionality, that means that planning processing is something that occurs over time and with effort.
- Skills are things we do with very little thinking. Automatic actions do not afford the time for thinking (planning) but rather immediate responding.
- Therefore, Planning and EF should not be described as ‘skills’

Math strategies stimulate thinking



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.

HAMMILL INSTITUTE ON DISABILITIES

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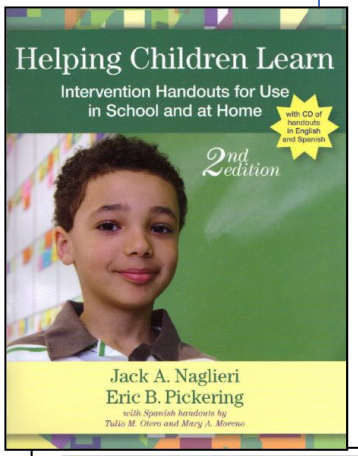
A Cognitive Strategy Instruction to Improve Math Calculation for Children With ADHD and LD: A Randomized Controlled Study



Jackie S. Iseman[1] and Jack A. Naglieri[1]

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
reas the comparison group received-
ievement 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).
n group. These findings suggest that
nsfer to standardized tests of math
nd continued advantage 1 year later

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.

Experimental Design

- Groups were Randomly Assigned to Experimental or Control condition
- Math lessons were organized into "instructional sessions" delivered over 13 consecutive days for 30-40 minutes
- Each instructional session was comprised of three segments:

10 minutes	10-20 minutes	10 minutes
10-minute math worksheet	EXPERIMENTAL GROUP Planning Facilitation CONTROL GROUP Normal Instruction	10-minute math worksheet

Planning (Executive Function) & Strategies

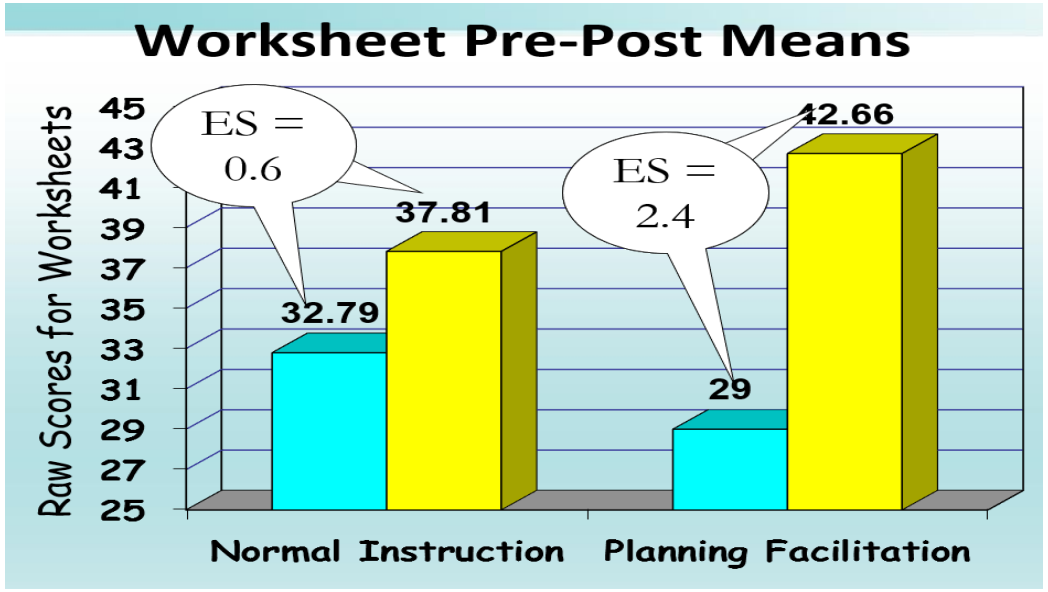
Teachers Asked

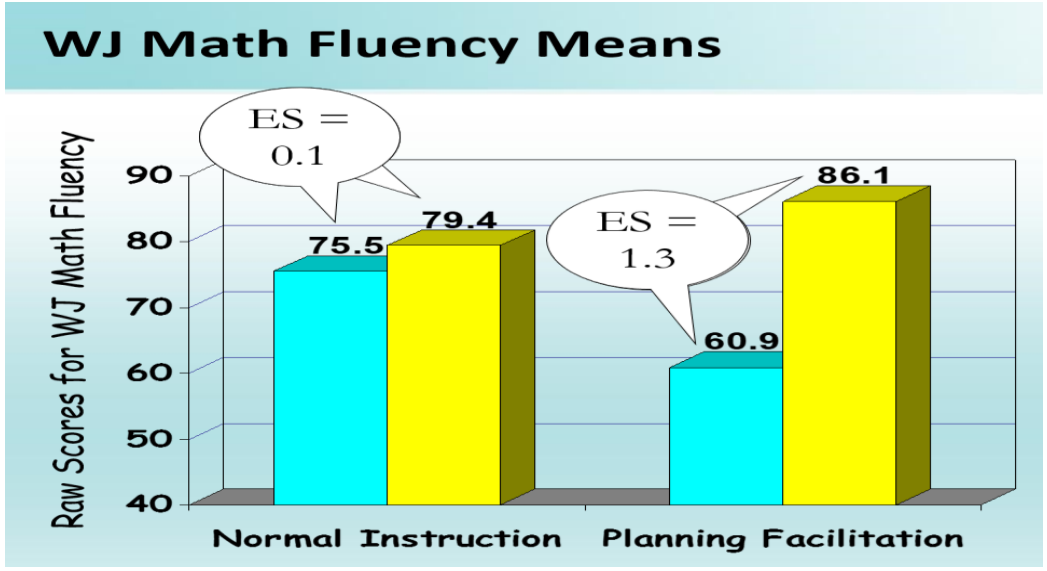
- Teachers *facilitated* discussions to help students become more self-reflective about use of strategies
- Teachers asked questions like:
  - What was your goal?
  - Where did you start the worksheet?
  - What strategies did you use?
  - How did the strategy help you reach your goal?
  - What will you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

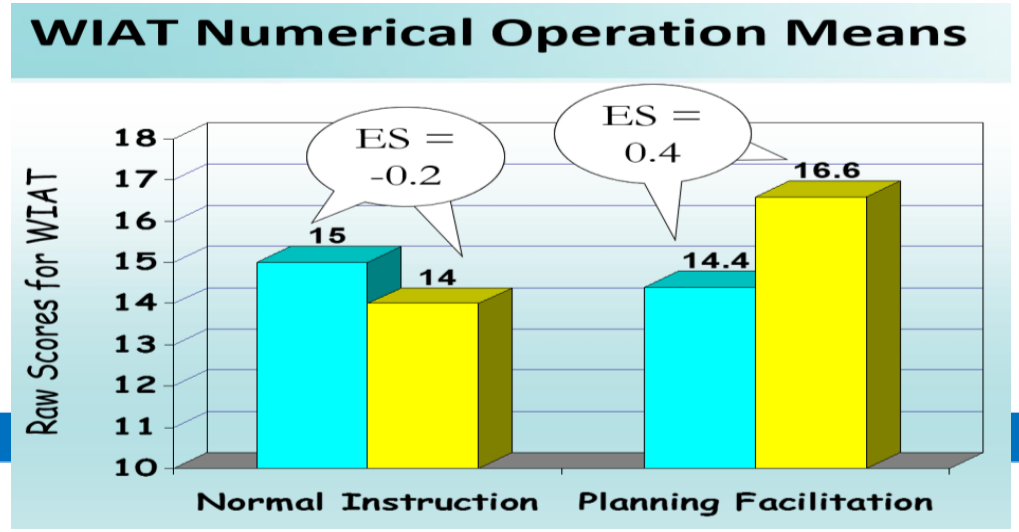
Students Responded

- "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"

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



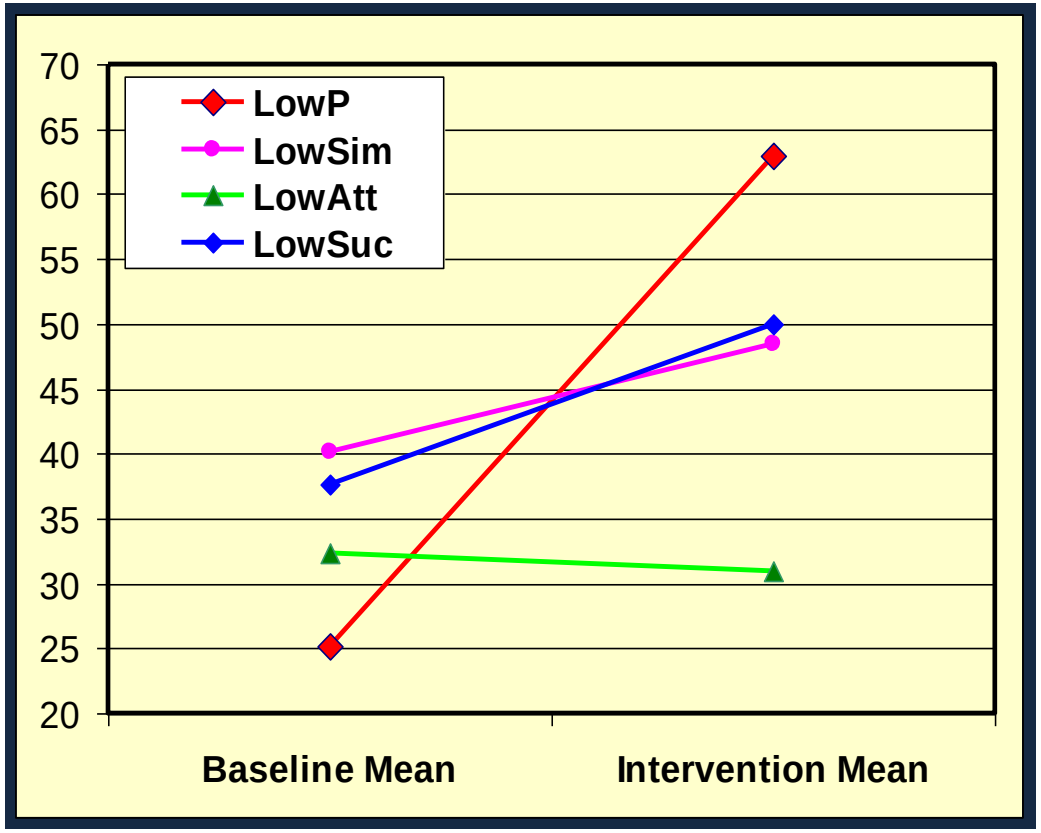




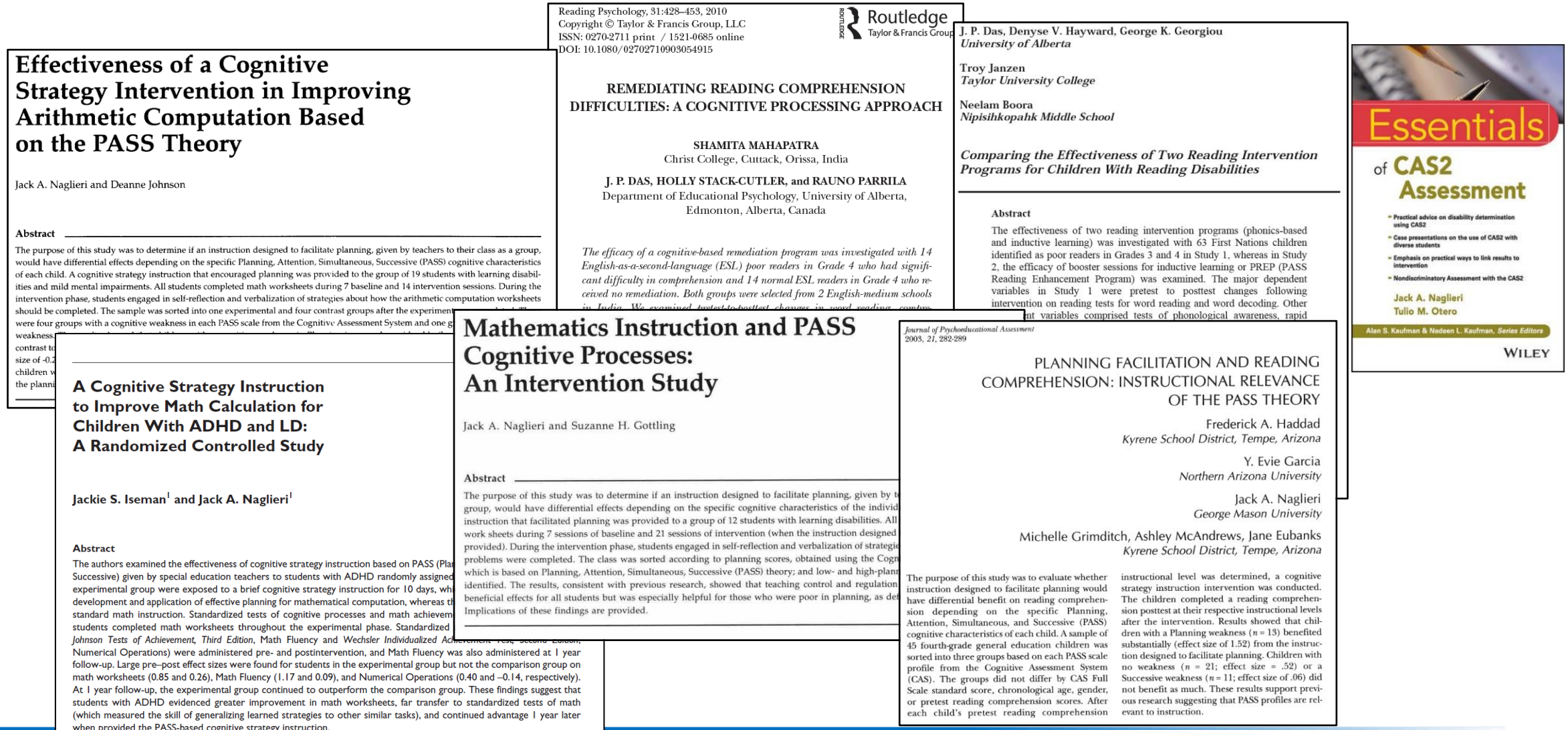
At 1-year follow-up, 27 of the students were retested on the WJ-III ACH Math Fluency subtest as part of the school's typical yearly evaluation of students. This group included 14 students from the comparison group and 13 students from the experimental group. The results indicated that the improvement of students in the experimental group ($M = 16.08$, $SD = 19$, $d = 0.85$) was significantly greater than the improvement of students in the comparison group ($M = 3.21$, $SD = 18.21$, $d = 0.09$).

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



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 contrast groups after the experiment were four groups with a cognitive weakness in each PASS scale from the Cognitive Assessment System and one g weakness. contrast t size of -0.2 children w the planni

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

Jackie S. Iseman[1] and Jack A. Naglieri[1]

Abstract

The authors examined the effectiveness of cognitive strategy instruction based on PASS (Pla Successive) given by special education teachers to students with ADHD randomly assigned experimental group were exposed to a brief cognitive strategy instruction for 10 days, wh development and application of effective planning for mathematical computation, whereas t standard math instruction. Standardized tests of cognitive processes and math achievem students completed math worksheets throughout the experimental phase. Standardized *Johnson Tests of Achievement, Third Edition*, Math Fluency and *Wechsler Individualized Ach* Numerical Operations) were administered pre- and postintervention, 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, far 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.

Reading Psychology, 31:428–453, 2010
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DOI: 10.1080/02702710903054915

Routledge
Taylor & Francis Group

REMEDIATING READING COMPREHENSION DIFFICULTIES: A COGNITIVE PROCESSING APPROACH

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Department of Educational Psychology, University of Alberta, Edmonton, Alberta, Canada

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 received no remediation. Both groups were selected from 2 English-medium schools in India. We examined pretest-to-posttest changes in word reading, contra

Mathematics Instruction and PASS Cognitive Processes: An Intervention Study

Jack A. Naglieri and Suzanne H. Gottling

Abstract

The purpose of this study was to determine if an instruction designed to facilitate planning, given by t group, would have differential effects depending on the specific cognitive characteristics of the individ 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 strategie problems were completed. The class was sorted according to planning scores, obtained using the Cogn which is based on Planning, Attention, Simultaneous, Successive (PASS) theory; and low- and high-plann identified. The results, consistent with previous research, showed that teaching control and regulation beneficial effects for all students but was especially helpful for those who were poor in planning, as de Implications of these findings are provided.

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University of Alberta

Troy Janzen
Taylor University College

Neelam Boora
Nipisihkopahk Middle School

Comparing the Effectiveness of Two Reading Intervention Programs for Children With Reading Disabilities

Abstract

The effectiveness of two reading intervention programs (phonics-based and inductive learning) was investigated with 63 First Nations children identified as poor readers in Grades 3 and 4 in Study 1, whereas in Study 2, the efficacy of booster sessions for inductive learning or PREP (PASS Reading Enhancement Program) was examined. The major dependent variables in Study 1 were pretest to posttest changes following intervention on reading tests for word reading and word decoding. Other nt variables comprised tests of phonological awareness, rapid

Journal of Psychoeducational Assessment
2003, *21*, 282-289

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

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Jack A. Naglieri
George Mason University

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

The purpose of this study was to evaluate whether instruction designed to facilitate planning would have differential benefit 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 profile from the Cognitive Assessment System (CAS). The groups did not differ by CAS Full Scale standard score, chronological age, gender, or pretest 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 posttest at their respective instructional levels after the intervention. Results showed that children with a Planning weakness ($n = 13$) benefited substantially (effect size of 1.52) from the instruction designed to facilitate planning. Children with no weakness ($n = 21$; effect size = .52) or a Successive weakness ($n = 11$; effect size of .06) did not benefit as much. These results support previous research suggesting that PASS profiles are relevant to instruction.

Core Group Discussion → Deeper Learning

IF Planning = EF What implications does that have for assessment of EF using Rating Scales? What other areas should we measure?

PASS Theory Based on Brain Function – Attention

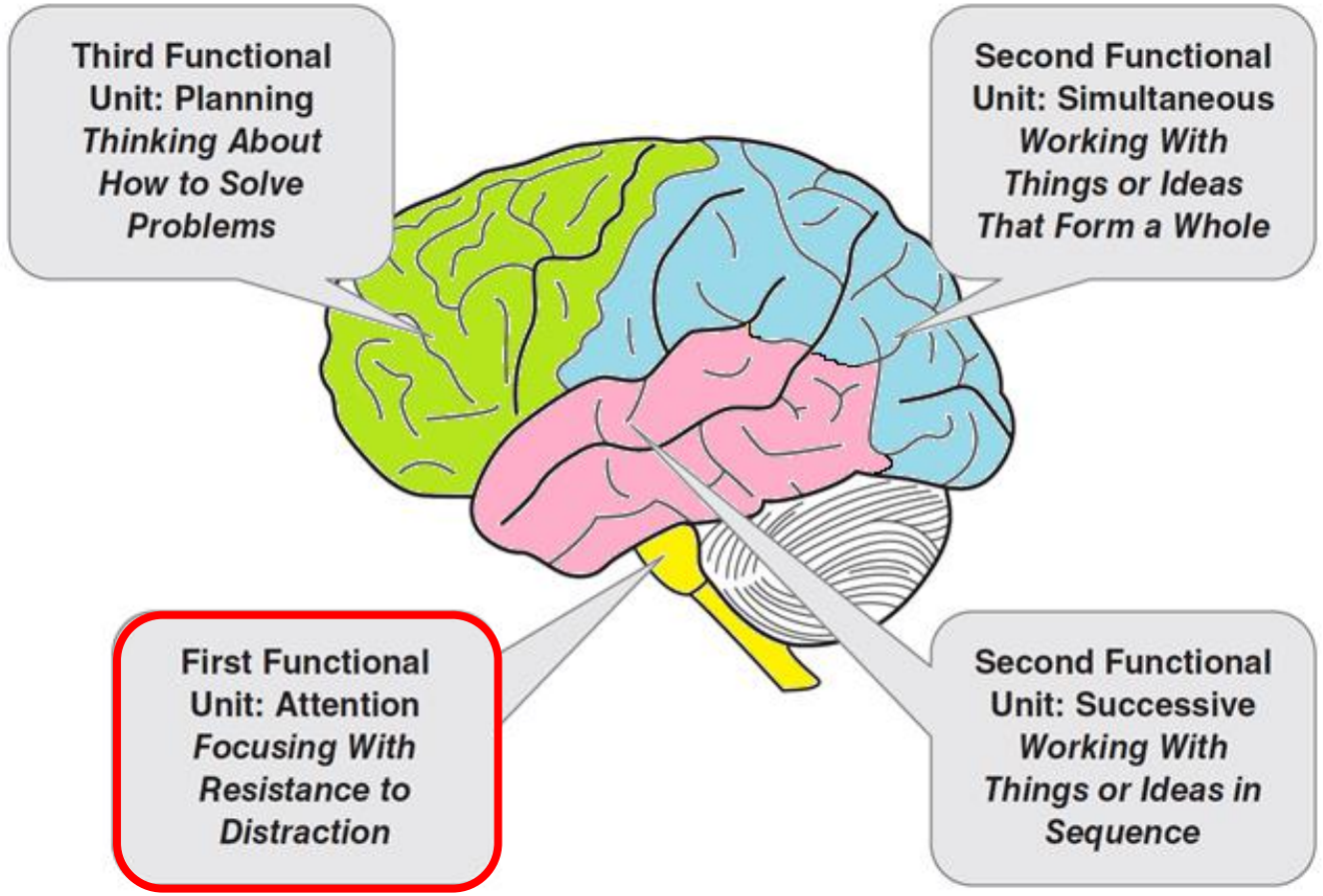


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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

THINKING REQUIRED: Each Attention Subtest measures the extent to which a student can resist responding to a distracting stimulus so that a specific stimulus can be identified.

Behaviors about Attention

Directions for Items 21–30. These questions ask how well the child or adolescent pays attention and resists distractions. The questions also ask about how well someone attends to one thing at a time. Please rate how well the child or adolescent pays attention.

During the past month, how often did the child or adolescent . . .	Never	Rarely	Sometimes	Frequently	Always
21. work well in a noisy area?	0	1	2	3	4
22. stay with one task long enough to complete it?	0	1	2	3	4
23. not allow the actions or conversations of others to interrupt his or her work?	0	1	2	3	4
24. stay on task easily?	0	1	2	3	4
25. concentrate on a task until it was done?	0	1	2	3	4
26. listen carefully?	0	1	2	3	4
27. work without getting distracted?	0	1	2	3	4
28. have a good attention span?	0	1	2	3	4
29. listen to instructions or directions without getting off task?	0	1	2	3	4
30. pay attention in class?	0	1	2	3	4

___ + ___ + ___ + ___ + ___ = ☐

Attention Raw Score

Expressive Attention and Number Detection

Find the numbers that look like this: 1 2 3

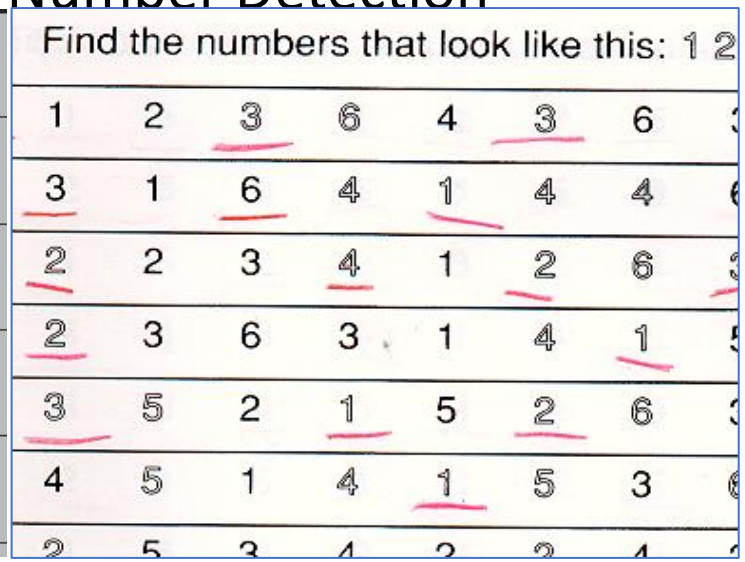
1	2	3	6	4	3	6	3
3	1	6	4	1	4	4	6
2	2	3	4	1	2	6	3
2	3	6	3	1	4	1	5
3	5	2	1	5	2	6	3
4	5	1	4	1	5	3	6
2	5	3	4	2	2	4	2
6	1	5	5	2	4	5	3
3	6	6	3	1	6	5	5

Attention Subtests

- Expressive Attention

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

Number Detection

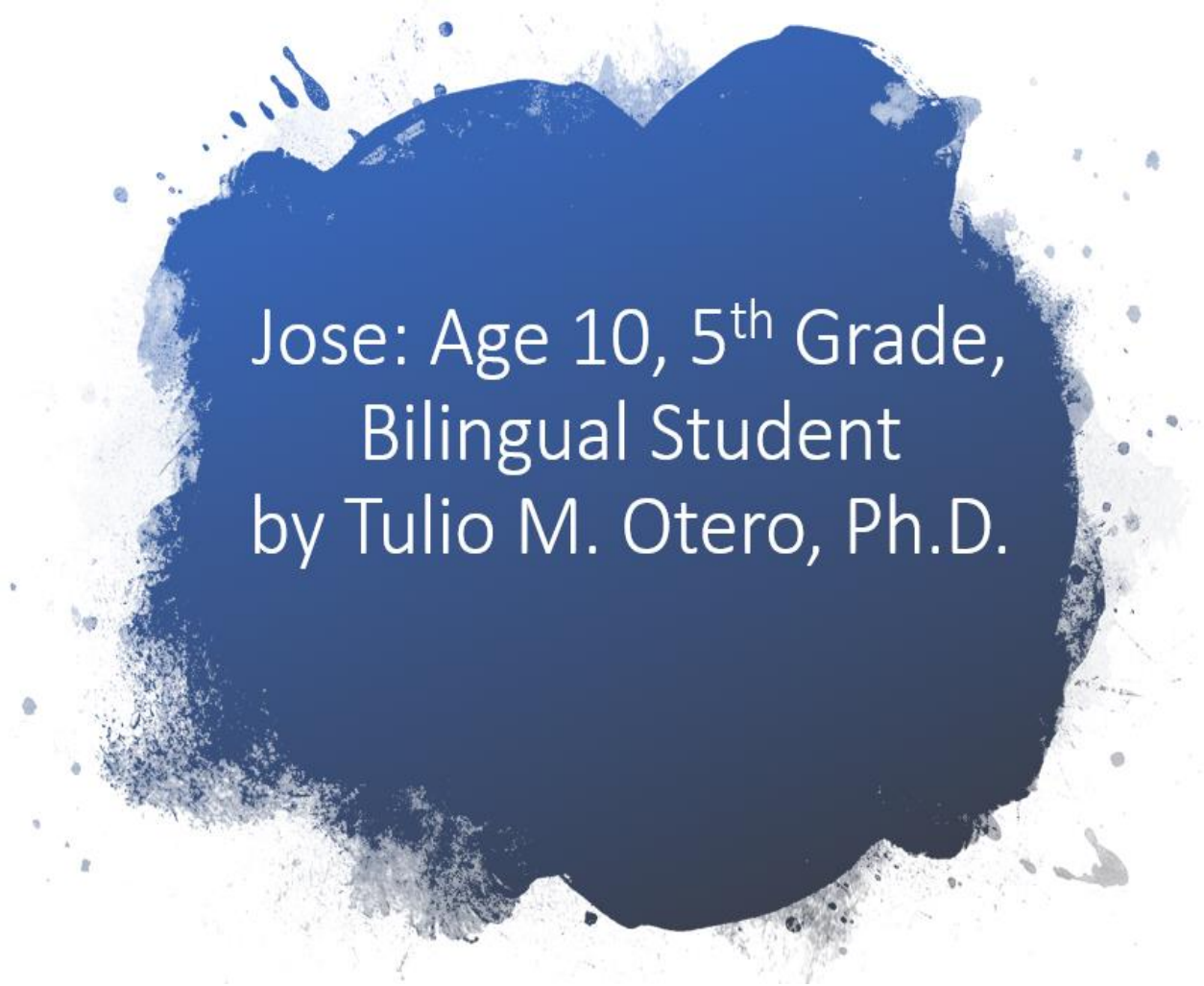


Receptive Attention

Under line pairs of letters that are the same

Version 1
BB RB EE

Version 2
Pp Rb Ee



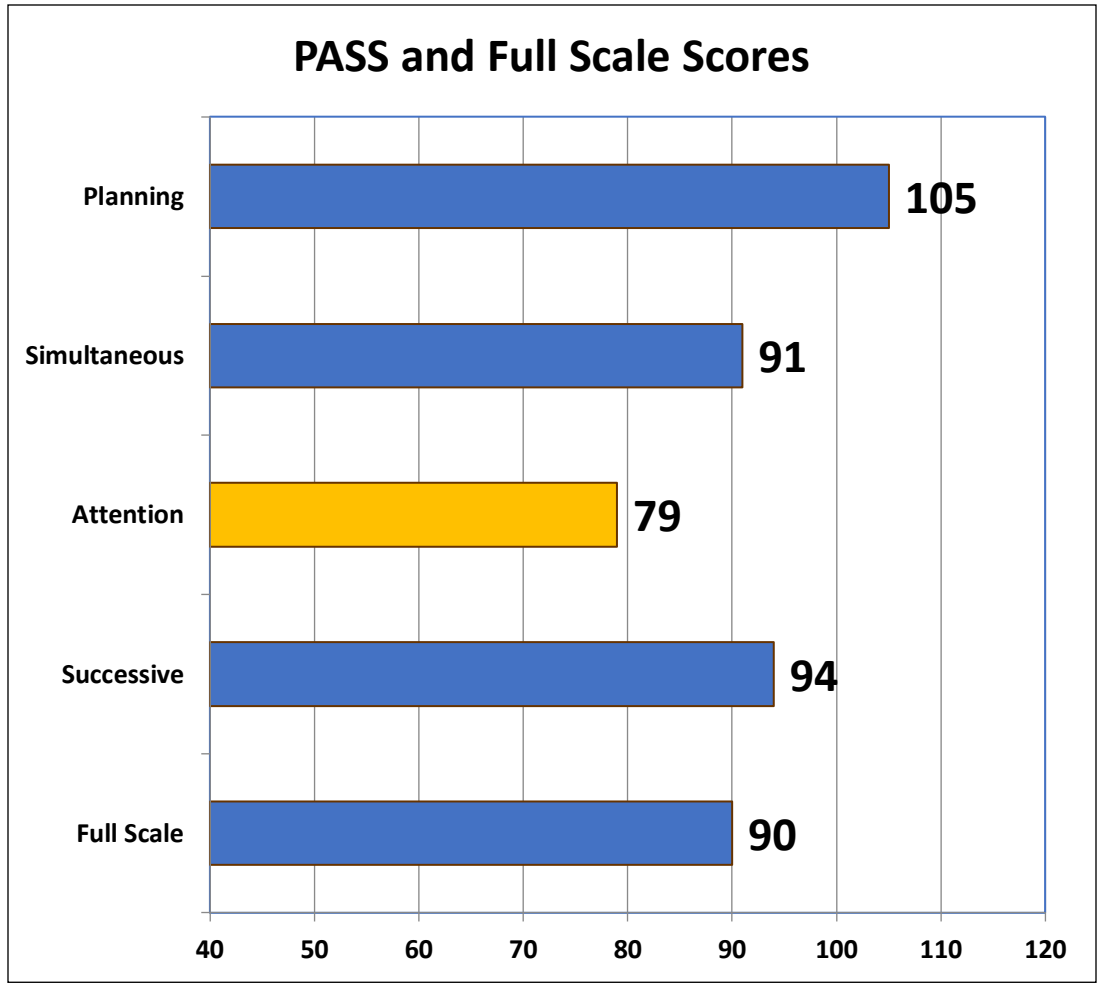
Jose reading problems and the teacher these concerns:

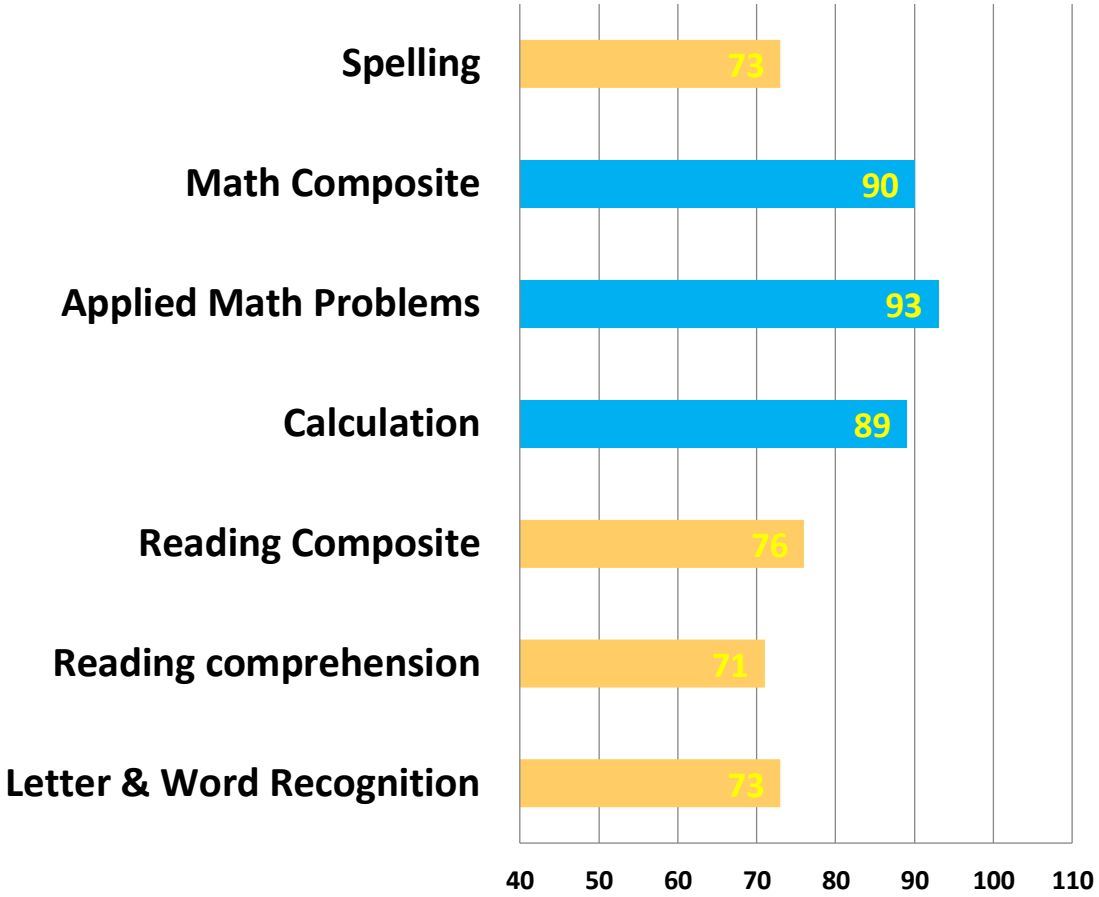
phonemic awareness, reading fluency, reading comprehension math problem-solving, spelling, written expression

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

CAS2 and KTEA-III Scores (January 2020)





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).

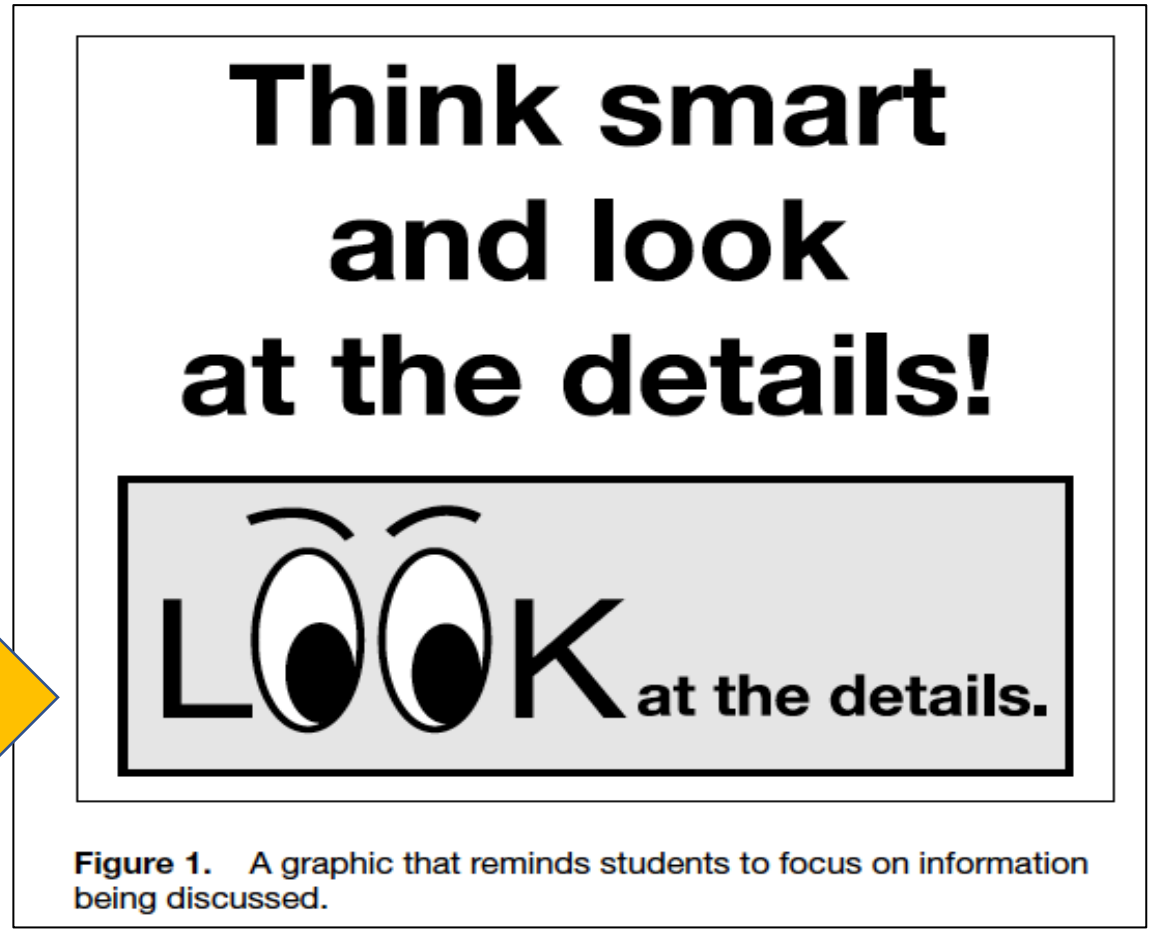


Figure 1. A graphic that reminds students to focus on information being discussed.

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.

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.

Planning & Attention are included in the concept of Executive Function

How to integrate PASS with data from EF Rating Scales

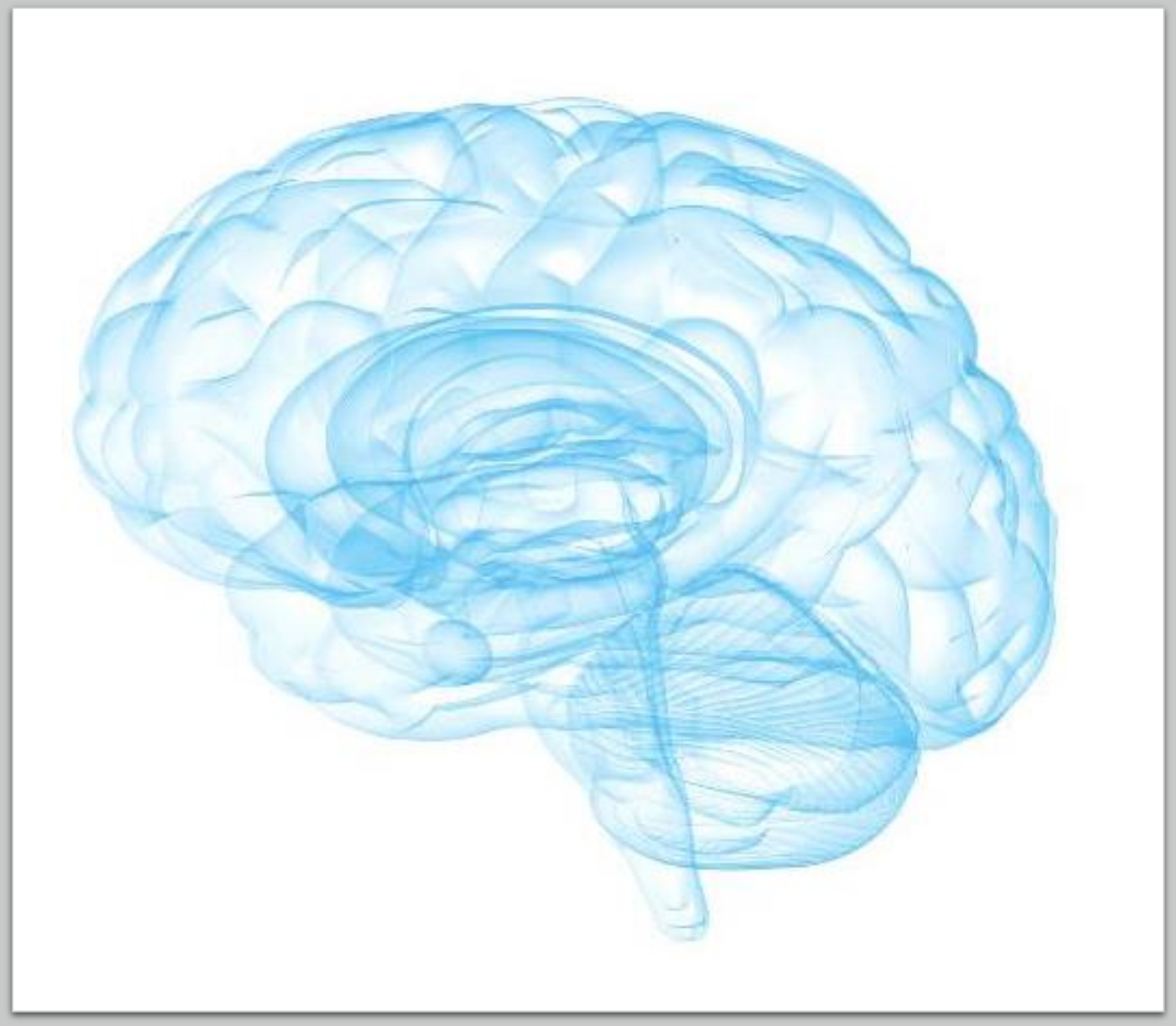
Comprehensive Assessment of Executive Function: From Theory to Practice

Integration of CEFI & CAS2

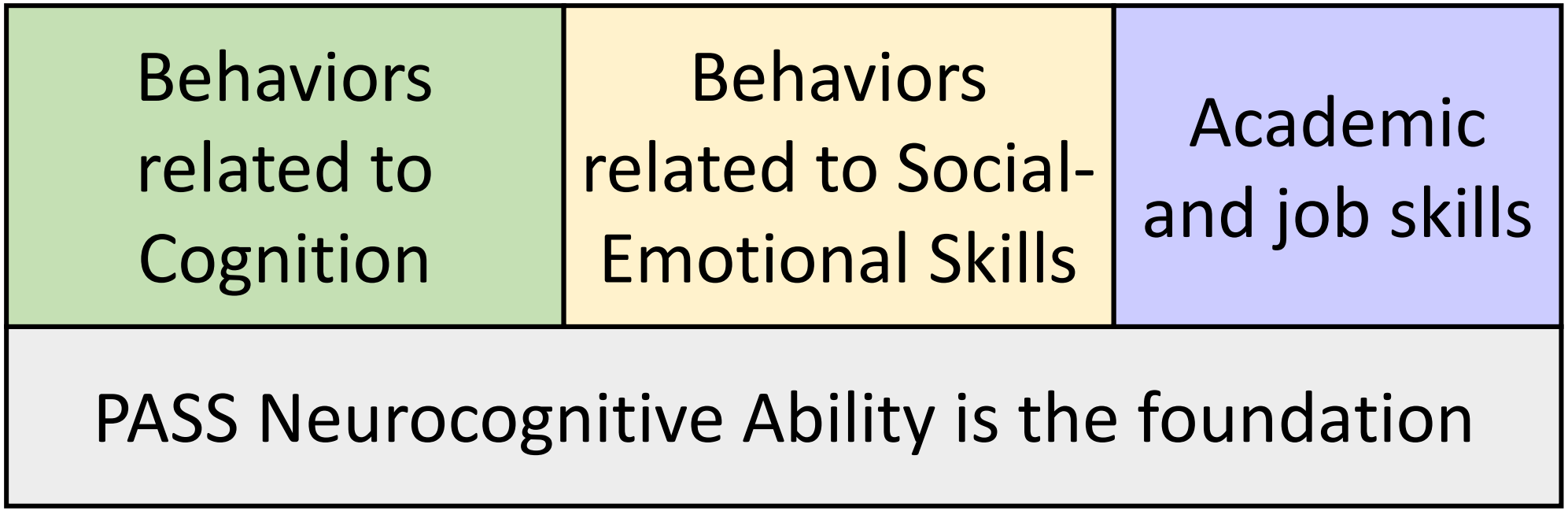
- Executive Function (EF) is the most important ability we have, because it provides us a way to decide ***how to do what we choose to do to achieve a goal***
- The best news is that EF **can be taught**
- Instruction that improves EF will affect a person's ability to learn, their behavior, and their social skills.
- Improving EF will change an individual's life

EF and Intelligence

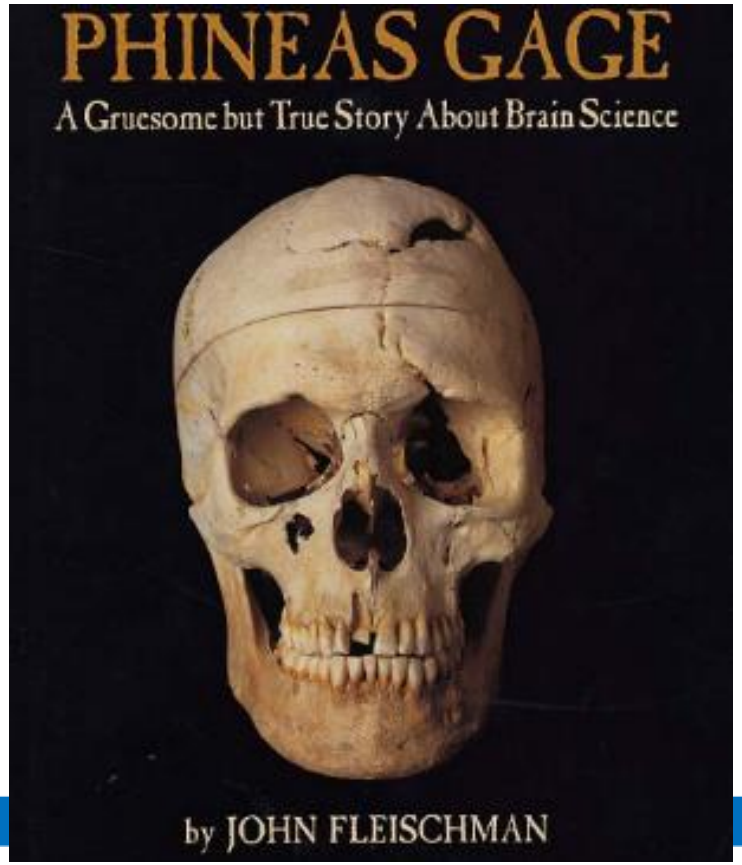
- If we define intelligence from a neurocognitive perspective that means that the concept of executive function should be included.
- EF is an ability (type of intelligence) by virtue of its relationship to the brain
- EF is measured by the CAS2 but not traditional IQ tests
- How should EF be measured?



A Comprehensive Assessment of EF



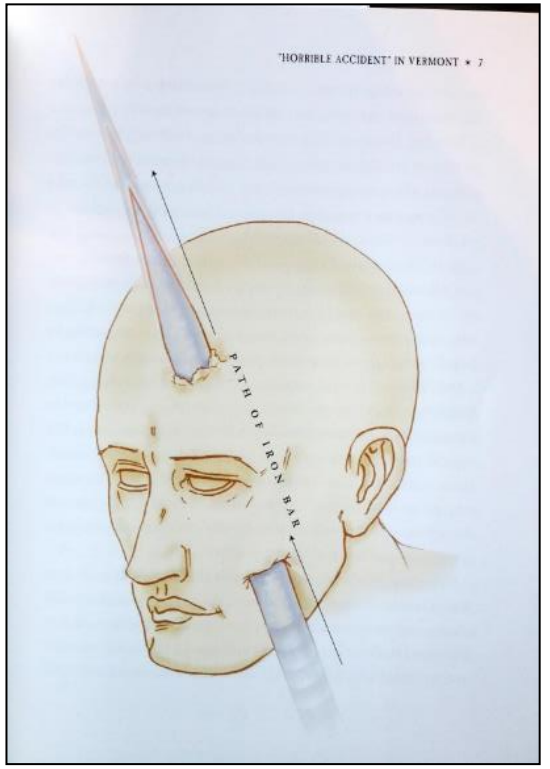
The Curious Story of Phineas Gage



- September 13, 1848 26 year old Phineas Gage was in charge of a railroad track construction crew blasting granite bedrock near Cavendish, Vermont
- The job Phineas has is to use a “tamping iron” to set explosives
- The tamping iron is a rod about 3 ½ feet long weighing 13 ½ lbs pointed at one end

Fleishman (2002, p 70)

- From Damasio (1994) article in *Science*
- The rod passed through the left frontal lobe
- The damage was to the front of the frontal cortex more than the back, and the underside more than the top
- This diminished his planning and decision making, self monitoring, self correction, especially in novel settings



Fleishman (2002)

Before . . . & . . . After

Before the accident ‘he possessed a well-balanced mind, was seen as a shrewd, smart business man, very energetic and persistent in executing all his plans of operation’ (p 59)

After the accident his ability to direct others was gone, he had considerable trouble with:

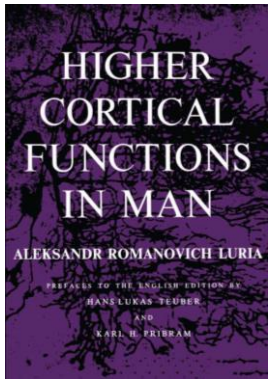
- Thinking
- Behaviors
- Work
- Social-emotional

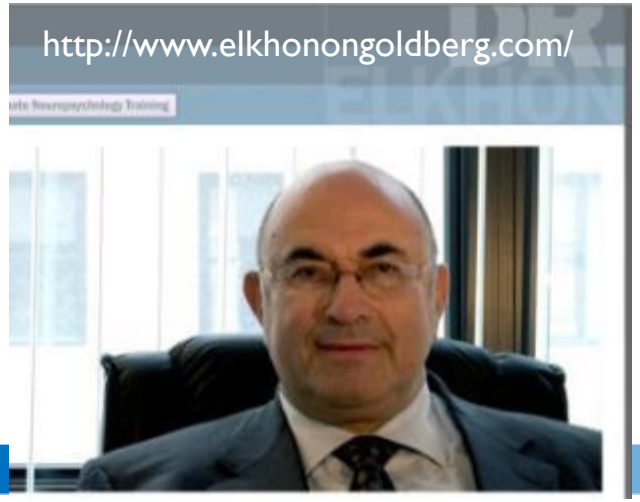
Frontal Lobes and Executive Function(s)

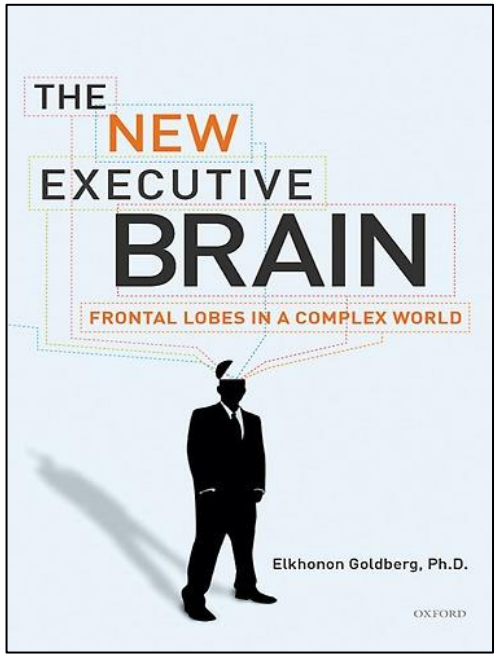
What do we mean by the term Executive Function(s)?

Executive Functions

- In 1966 Luria first wrote and defined the concept of Executive Function (EF) and described the frontal lobes as “the organ of civilization”
- Luria’s student, Nick Goldberg states that the frontal lobes are about …”leadership, motivation, drive, vision, self-awareness, and awareness of others, success, creativity, sex differences, social maturity, cognitive development and learning…”



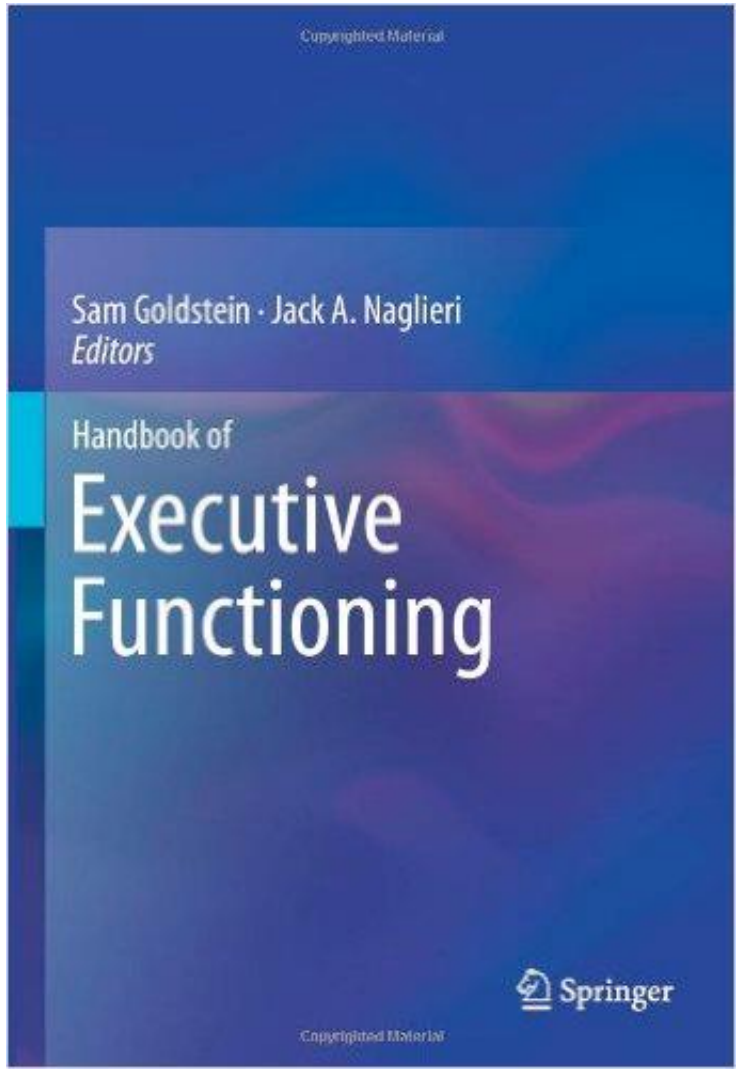




What is Executive Function(s)

There is no formal accepted definition of EF

- We typically find a vague general statement of EF (e.g., goal-directed action, cognitive control, top-down inhibition, effortful processing, etc.).
- Or a listing of the constructs such as
  - Inhibition, Working Memory,
  - Planning, Problem-Solving,
  - Goal-Directed Activity, Strategy Development and Execution,
  - Emotional Self-Regulation, Self-Motivation
- Goldstein, Naglieri, Princiotta, & Otero (2013)
  - Found more than 30 definitions of EF!



Executive Function(s)

- Given all the definitions of EF(s) we wanted to address the question…

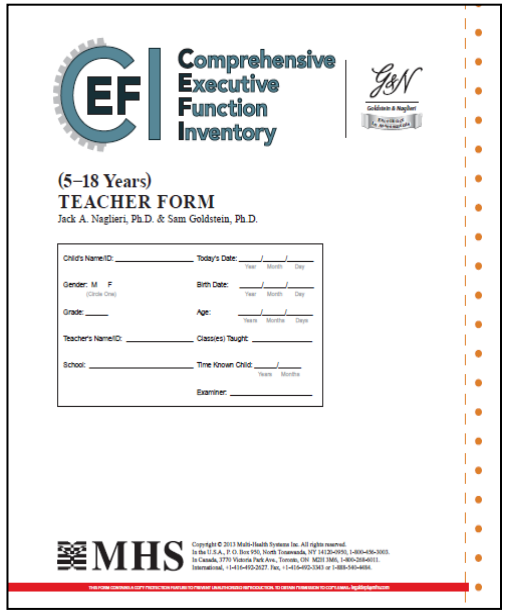
  Executive Function***s …*** or

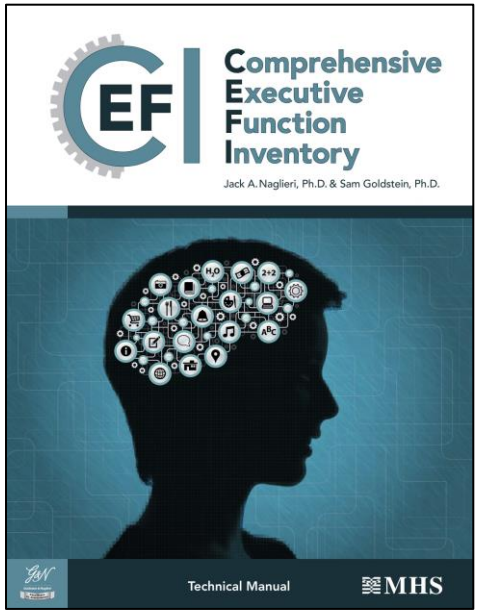
  Executive Function?

- One way to answer the question is to research the factor structure of EF behaviors
- Factor structure of the Comprehensive Executive Function Inventory (CEFI), and the Comprehensive Executive Function Inventory Adult (CEFI Adult)

CEFI

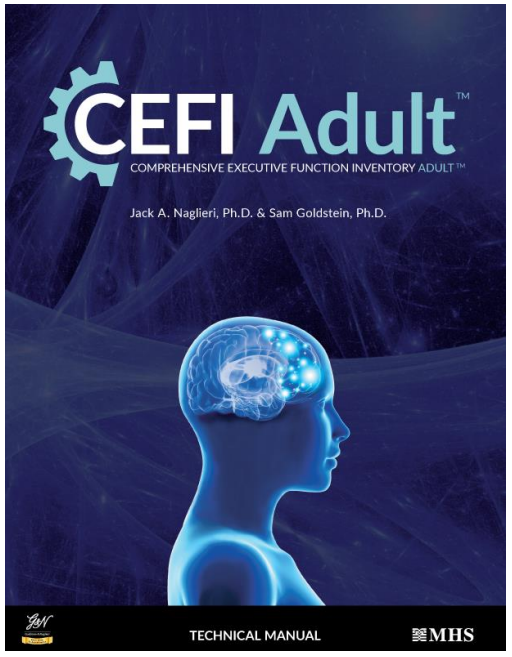
(Naglieri & Goldstein, 2012)





CEFI Adult

(Naglieri & Goldstein, 2017)



CEFI Exploratory Factor Analysis

- The normative samples for CEFI and CEFI Adult included ratings by parents, teachers, observers, and self ratings were randomly split into two samples and EFA conducted

Conclusions

- Nationally representative samples aged 5 to 80 years (N = 6,700) indicates that EF behaviors are best seen as **one construct**

CEFI Factor Analysis

Item Level Analysis

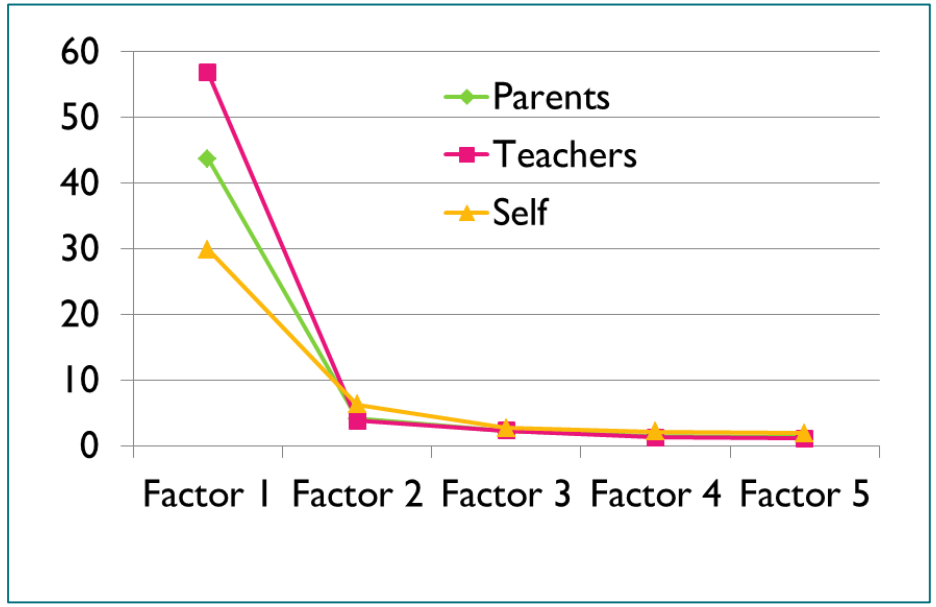
- For the ***first half*** of the normative sample (Parent, Teacher and Self ratings') **item scores** (90 items) used in factor analysis

Scale Level Analysis

- Using the ***second half*** of the normative sample EFA was conducted using raw scores for the following scales:
  - Attention
  - Emotion Regulation
  - Flexibility
  - Inhibitory Control
  - Initiation
  - Organization
  - Planning
  - Self-Monitoring
  - Working Memory

CEFI Factor Analysis

Item Factor Analyses

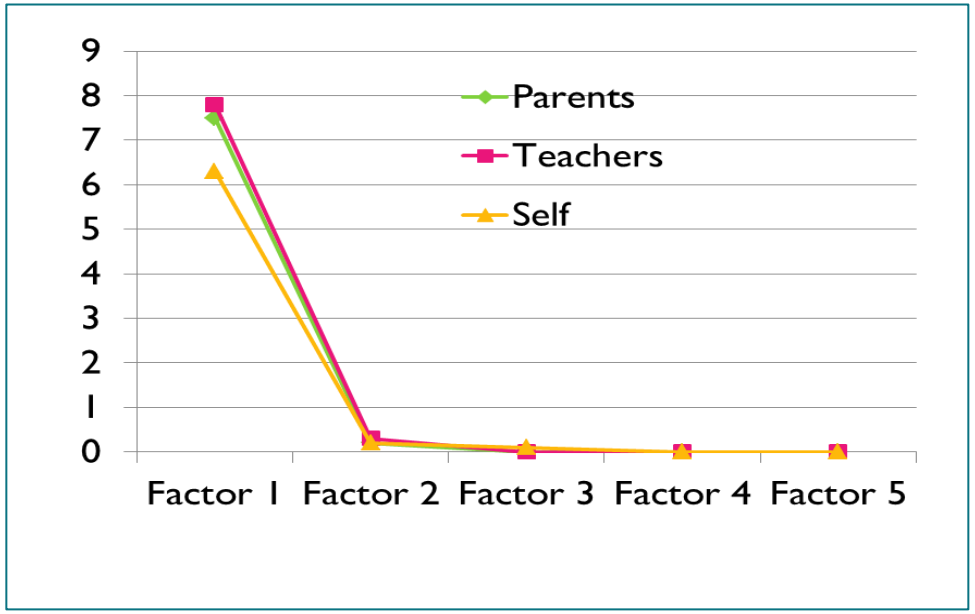


Eigenvalues from the Inter-Item Correlations

Form	Factor						
	1	2	3	4	5	6	7
Parent	43.7	4.1	2.3	1.5	1.3	1.3	1.0
Teacher	56.8	3.8	2.3	1.3	1.1	1.1	0.8
Self-Report	29.9	6.3	2.7	2.1	1.9	1.8	1.5

Note. Extraction method: Principal Axis Factoring. Only the first 10 eigenvalues are presented.

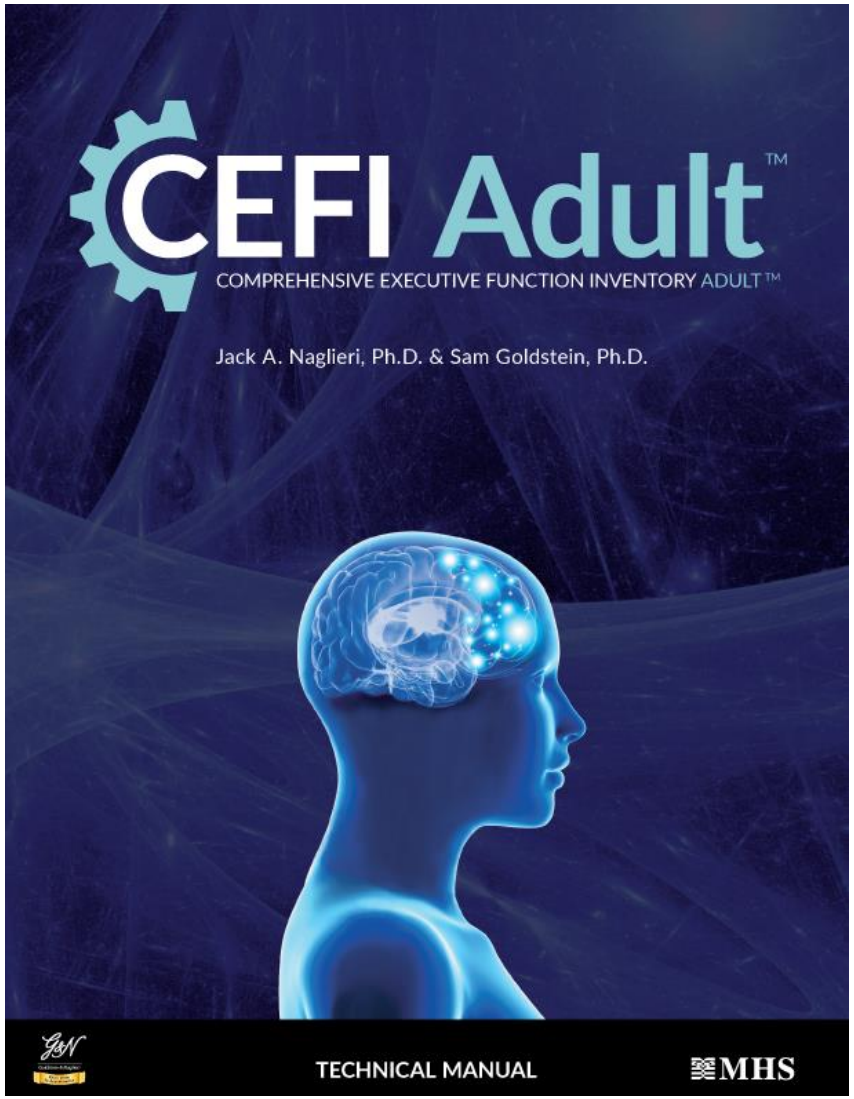
Scale Factor Analyses



Eigenvalues of the CEFI Scales Correlations

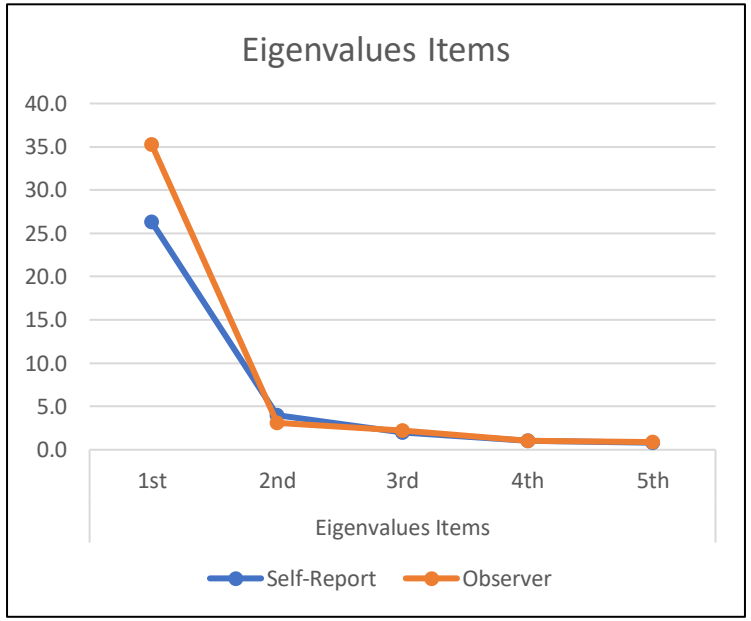
Form	Factor						
	1	2	3	4	5	6	7
Parent	7.5	0.2	0.0	0.0	0.0	0.0	0.0
Teacher	7.8	0.3	0.0	0.0	0.0	0.0	0.0
Self-Report	6.3	0.2	0.1	0.0	0.0	0.0	-0.1

Note. Extraction method: Principal Axis Factoring.


CEFI Adult™
COMPREHENSIVE EXECUTIVE FUNCTION INVENTORY ADULT™
Jack A. Naglieri, Ph.D. & Sam Goldstein, Ph.D.
TECHNICAL MANUAL
MHS

CEFI Adult Self (N = 1,600) & Observer (N = 1,600)

Item Factor Analyses

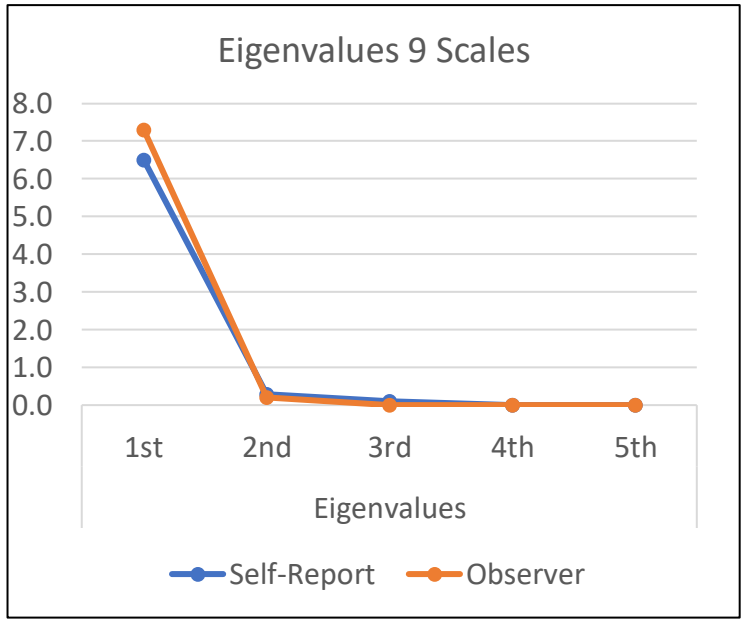


Eigenvalues from the Inter-Item Correlations

Form	1st:2nd	Factor								
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Self-Report	6.7	26.3	4.0	2.0	1.0	0.8	0.7	0.6	0.5	0.5
Observer	11.3	35.3	3.1	2.2	1.0	0.9	0.8	0.7	0.5	0.5

Note. Extraction method: Principal Axis Factoring. Only the first 9 eigenvalues are presented.

Scale Factor Analyses



Eigenvalues from the CEFI Adult Scales Correlations

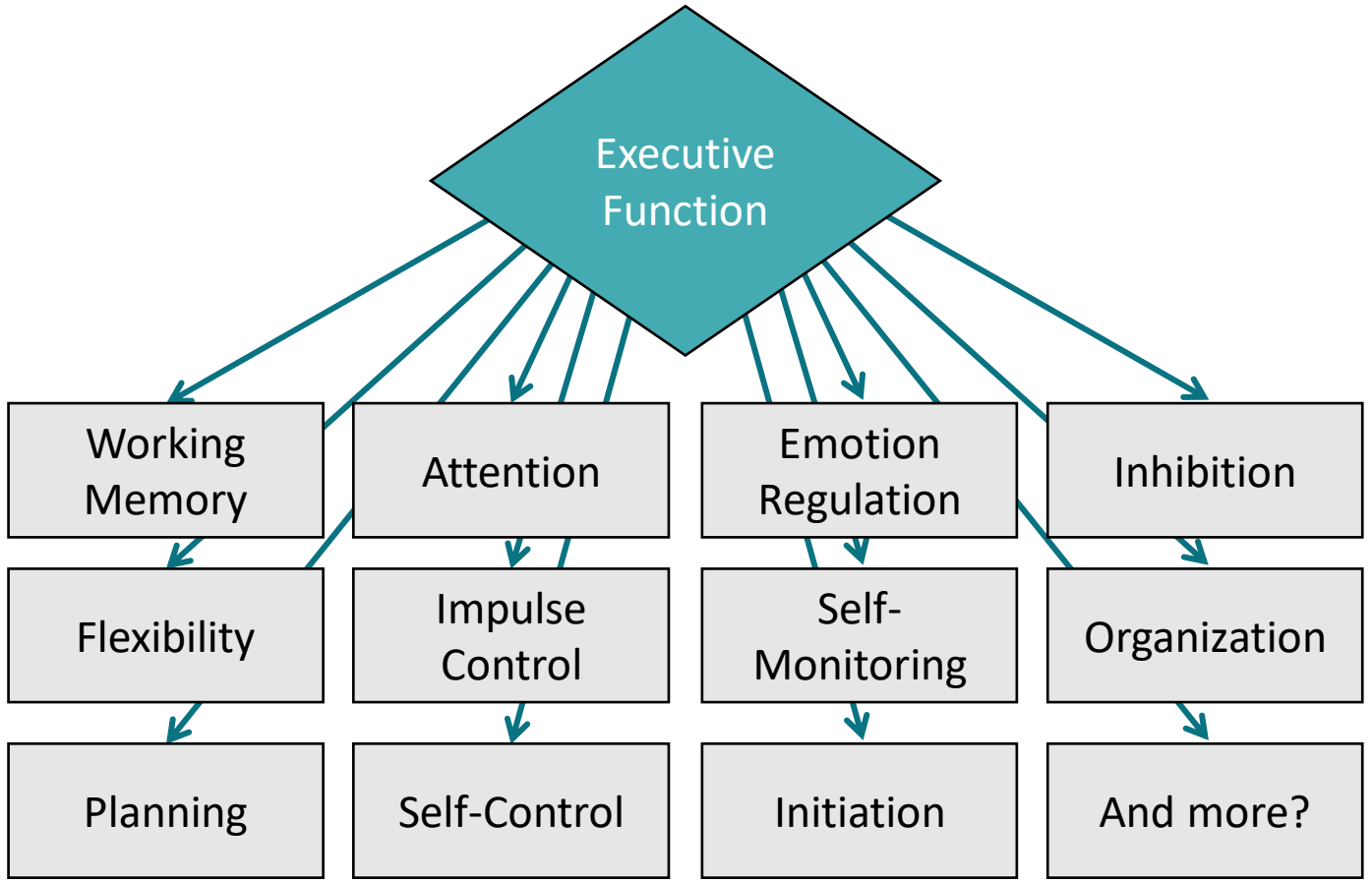
Form	1st:2nd	Factor								
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Self-Report	21.7	6.5	0.3	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1
Observer	32.7	7.3	0.2	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1

Note. Extraction method: Principal Axis Factoring.

Exploratory Factor Analysis

Conclusions

- Nationally representative samples aged 5 to 80 years (N = 6,700) indicates that EF behaviors are best seen as **one construct**



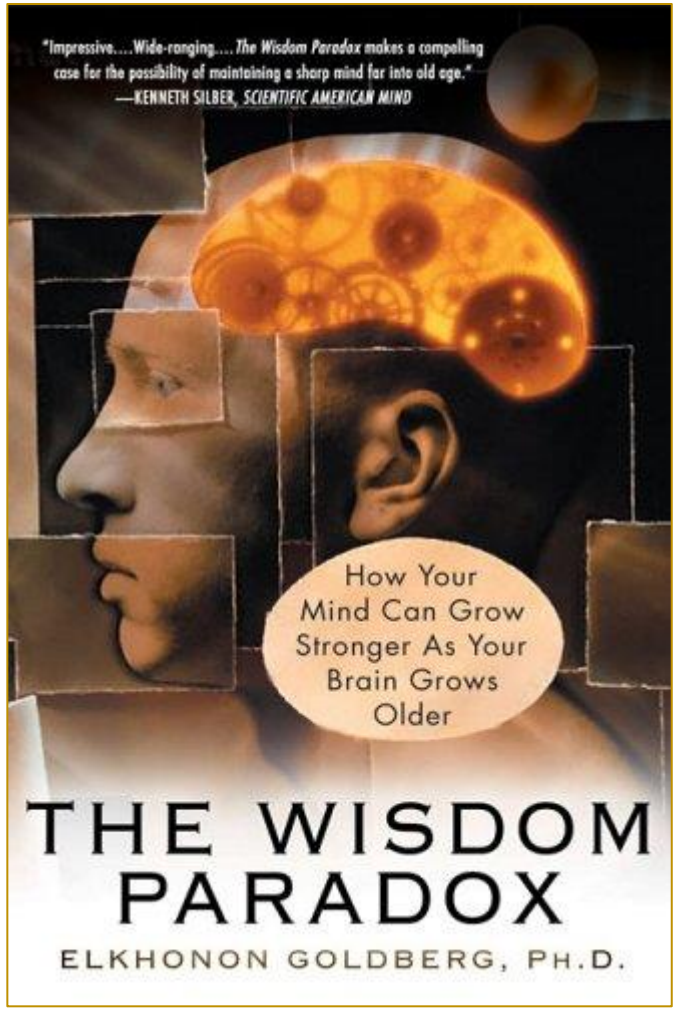
Executive Function Involves

"How you do what *you* decide to do" demands…

- **Initiation** to achieve a goal, **planning** and **organizing** parts of a task, **attending** to details to notice success of the solution, keeping information in **memory**, having **flexibility** to modify the solution as information from **self-monitoring** is received and demonstrating **emotion regulation** (which also demands **inhibitory control**) to ensure clear thinking so that the task is completed successfully.

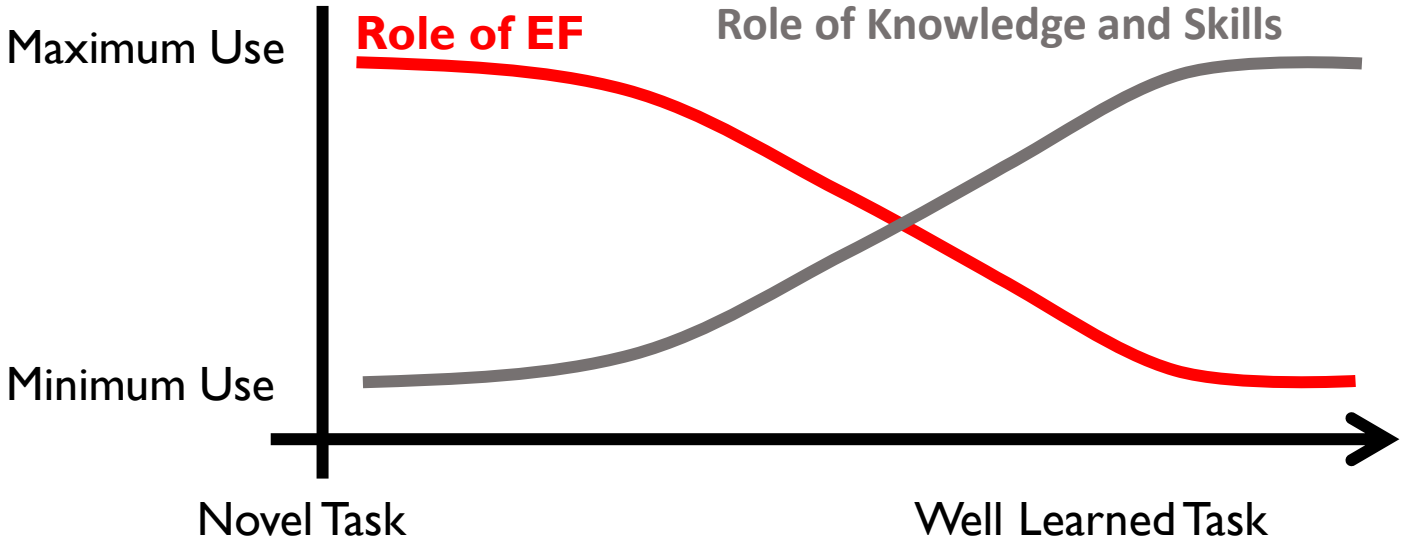
Goldberg: The Social Brain

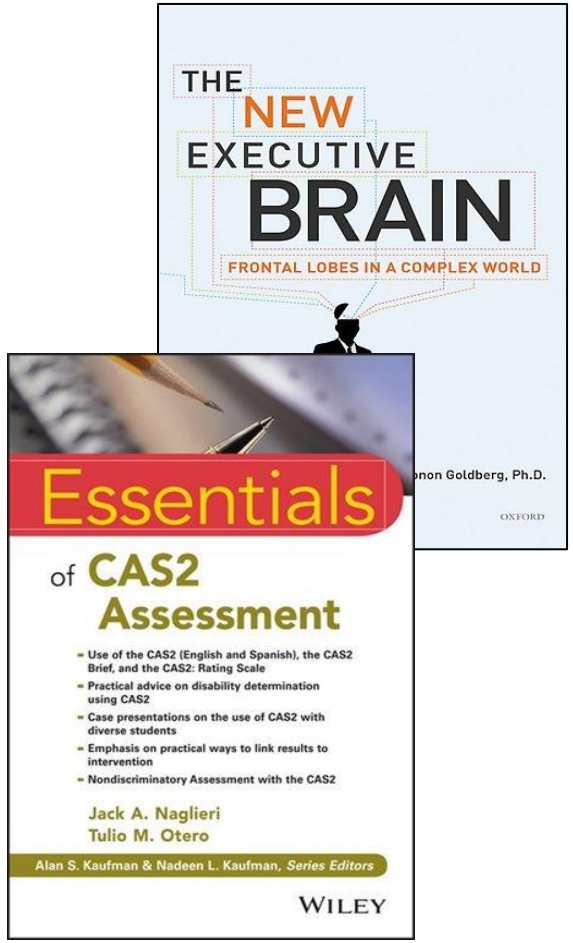
- Social situations are fluid and require making many unique decisions
- The “frontal lobes are particularly active when the organism is faced with novel challenges” (2005, p. 217)
- “As tasks become familiar…and effortless, the role of the prefrontal cortex diminishes” (2005, p. 217)



EF's Learning Curves (Naglieri & Otero, 2017)

- Learning depends upon instruction and EF
- At first, EF plays a major role in learning (see Goldberg, 2009, p. 90)
- When a new task is learned and practiced it becomes a skill and execution requires less EF (see Naglieri & Otero, 2017, p. 117)





Over time and with experience

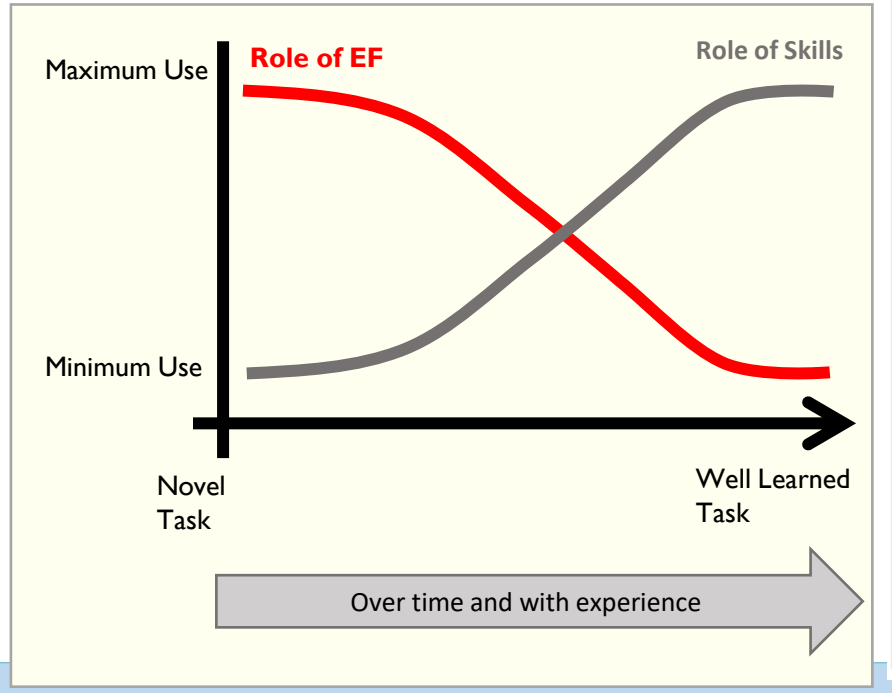
Executive Function and Skills

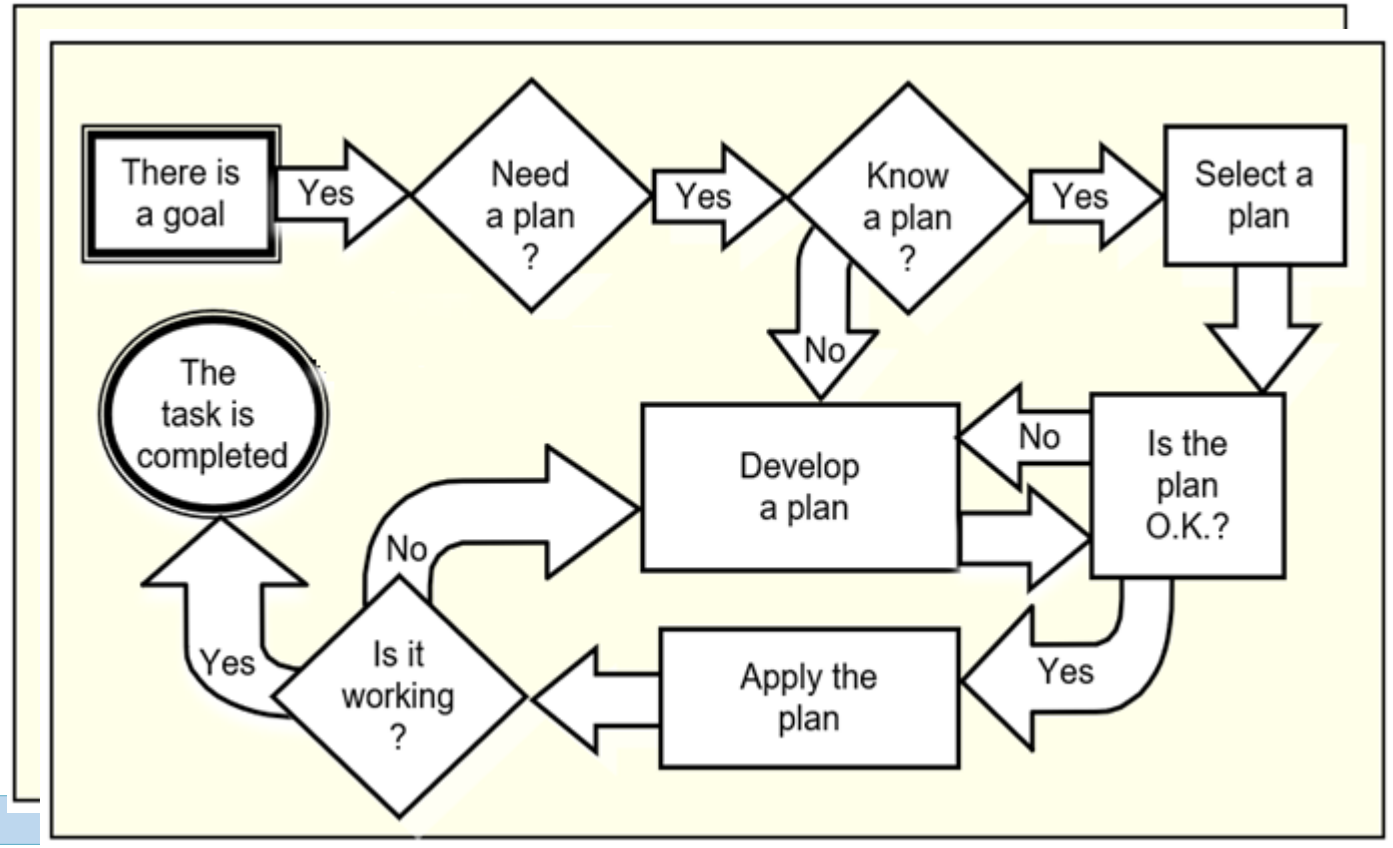
- What does the term SKILLS refer to?
  - A well practiced activity that can be executed automatically and with ease
    - This means there is fluency and little thinking involved
- What does the term Executive Function refer to?
  - Thinking About How You Do What You Decide To Do
    - Therefore EF can NOT be described as a skill

A Deeper View of Executive Function

EF STRATEGY: Graphic Organizers help us make sense of big ideas.

How you do what _you_ decide to do which demands…Especially in NOVEL situations





EF's Learning Curves

(Goldberg, 2009; Naglieri & Otero, 2017)

- Because MAKING DECISIONS about how to do what you decide to do is particularly demanded in novel situations, we need to fully engage our frontal lobes (EF) to be successful in our world today.

Coping with COVID Pandemic and Trauma

- Our world changed dramatically when COVID hit
- We had to figure out HOW to do just about everything
- The cognitive demands of COVID make life much harder
- This means EF is more important now than ever

Core Group Discussion → Deeper Learning

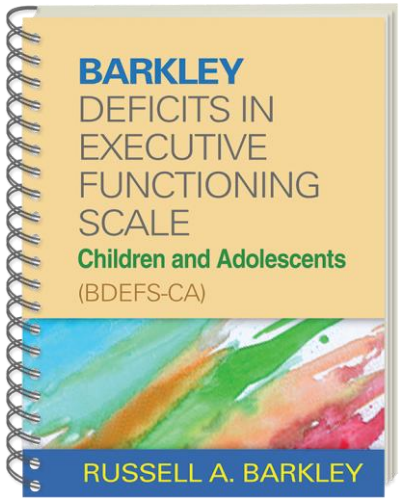
- **QUESTION: How do you feel about EF as a unitary concept?**
- **O**rganizer – Guide the discussion
- **R**ecorder – Keep notes and speak for the group

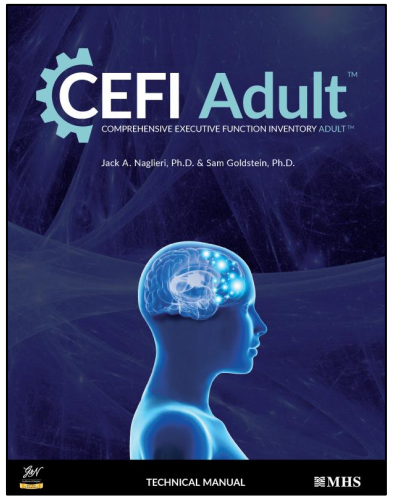
EF Presentation Outline

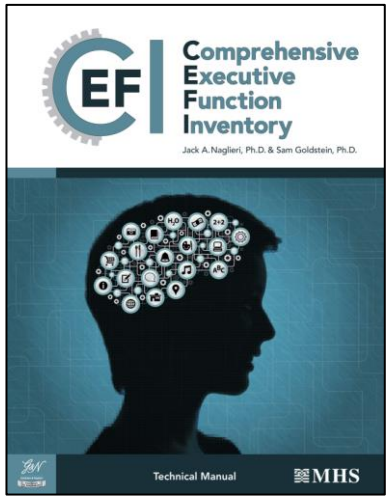
- Introduction to Executive Function (EF)
- EF Behaviors
- EF and Cognition (intelligence)
- EF and Social Emotional Skills
- EF and Academic/Job Performance
- Research about EF as ability, behavior, and SE
- Conclusions

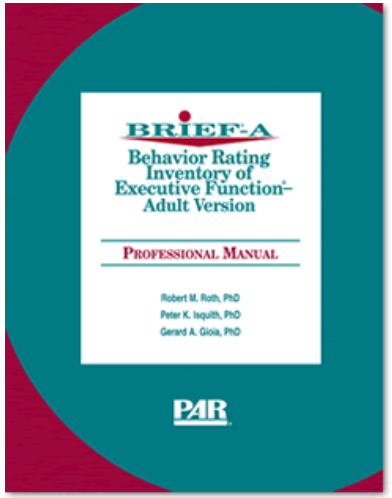
Psychometrics of EF Rating Scales

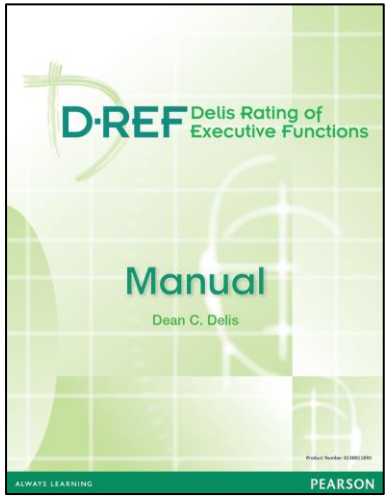
Some published rating scales







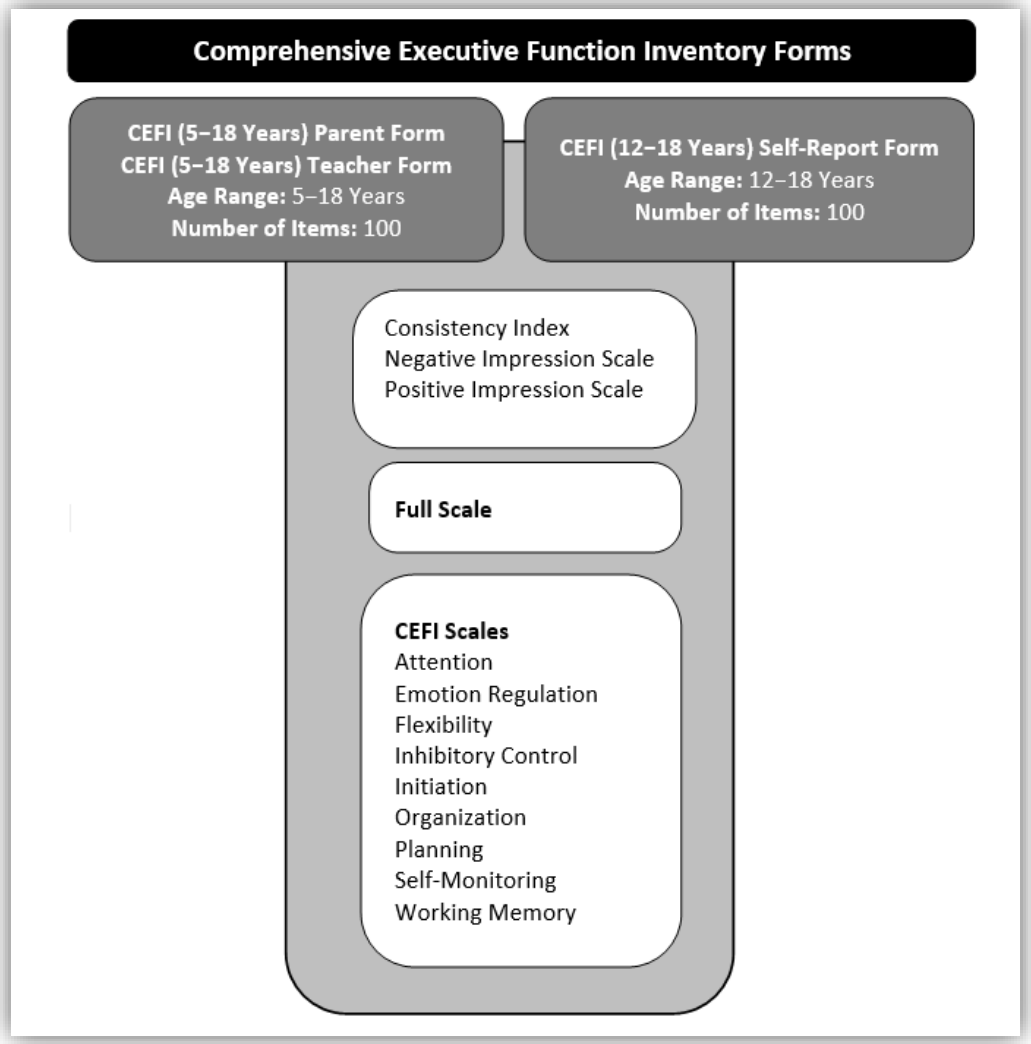


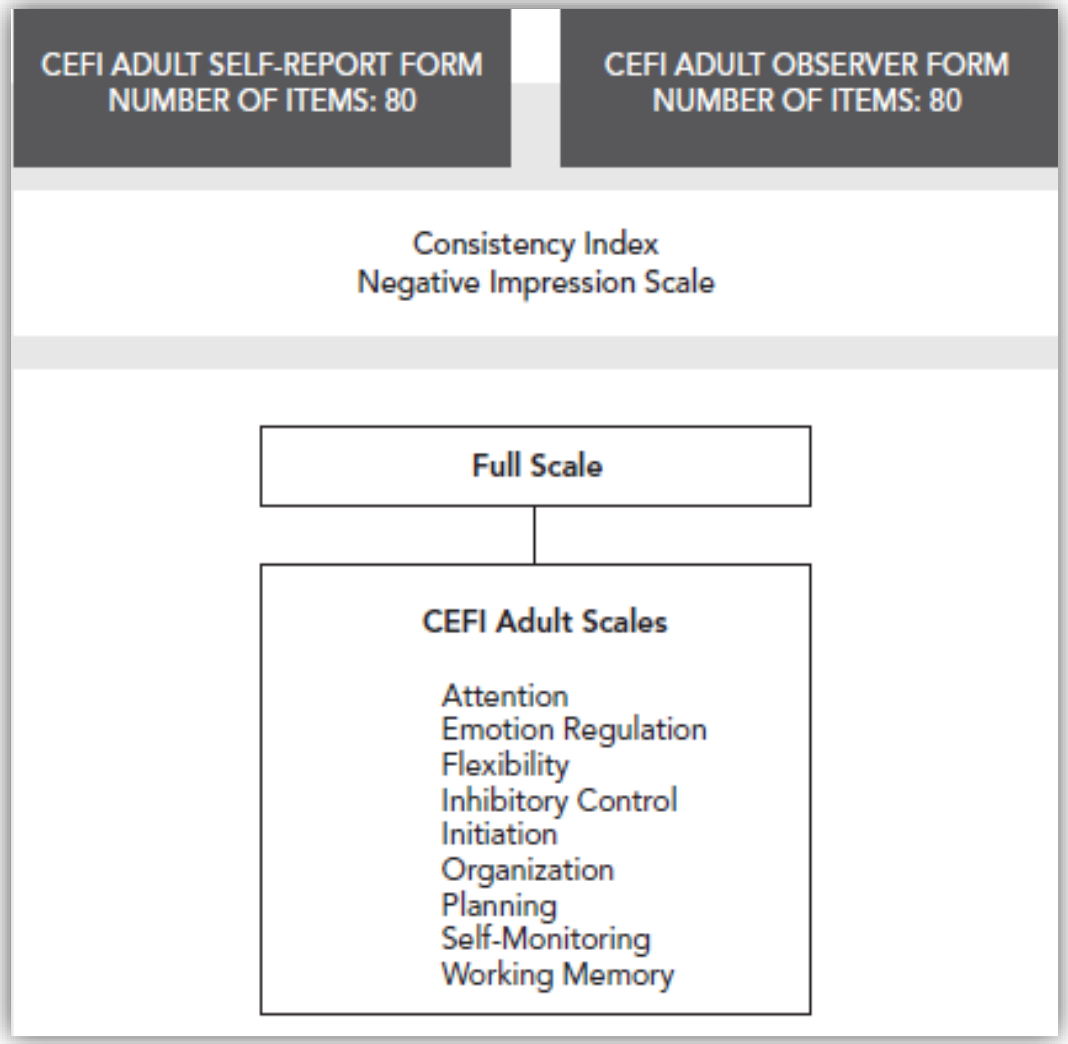


CEFI and the CEFI Adult

- **Strength based** EF measures
- Items are **positively** worded
- Higher scores = **good** behaviors related to EF
- Scores set at mean of **100**, SD of **15**
- CEFI: Ages 5-18 years rated by a parent, teacher, or the child/youth
- CEFI Adult: Ages 18+ years rated by the adult or an observer

CEFI Child & CEFI-Adult Scales



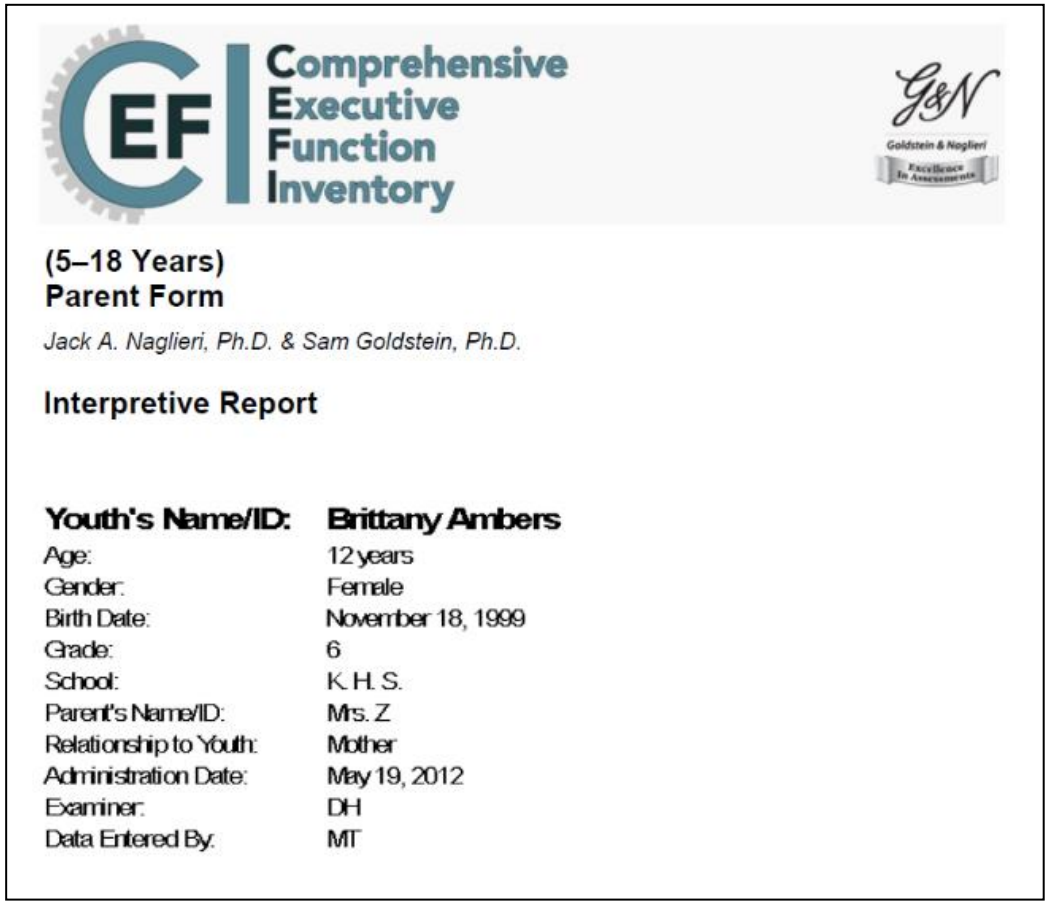


One Factor and 9 Scales?

- EF is a unidimensional concept
- Use the Full Scale to answer the question “Is the individual poor in EF or not?”
- Use the 9 scales to identify the specific groups of items that represent 9 different types of behaviors that can be addressed by Intervention

CEFI Scales	CEFI Adult Scales
Attention	Attention
Emotion Regulation	Emotion Regulation
Flexibility	Flexibility
Inhibitory Control	Inhibitory Control
Initiation	Initiation
Organization	Organization
Planning	Planning
Self-Monitoring	Self-Monitoring
Working Memory	Working Memory

CEFI and CEFI Adult Interpretive Reports



Comprehensive Executive Function Inventory

(5–18 Years)
Parent Form

Jack A. Naglieri, Ph.D. & Sam Goldstein, Ph.D.

Interpretive Report

Youth's Name/ID:	**Brittany Ambers**
Age:	12 years
Gender:	Female
Birth Date:	November 18, 1999
Grade:	6
School:	K. H. S.
Parent's Name/ID:	Mrs. Z
Relationship to Youth:	Mother
Administration Date:	May 19, 2012
Examiner:	DH
Data Entered By:	MT

CEFI Adult™
COMPREHENSIVE EXECUTIVE FUNCTION INVENTORY ADULT™

Jack A. Naglieri, Ph.D. & Sam Goldstein, Ph.D.

Observer Form
Interpretive Report

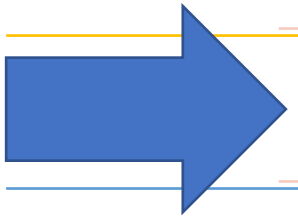
SAMPLE

Client's Name/ID:	Jodie Weather
Age:	20
Gender:	Female
Birth Date:	February 17, 1997
Observer's Name/ID:	Meagan
Relationship to Client:	Roommate
Time Known Client:	4 years, 2 months
Administration Date:	January 26, 2017
Examiner:	
Data Entered By:	

Presentation Outline

Introduction to Executive Function (EF)

EF Behaviors



EF and Cognition (intelligence)

EF and Social Emotional Skills

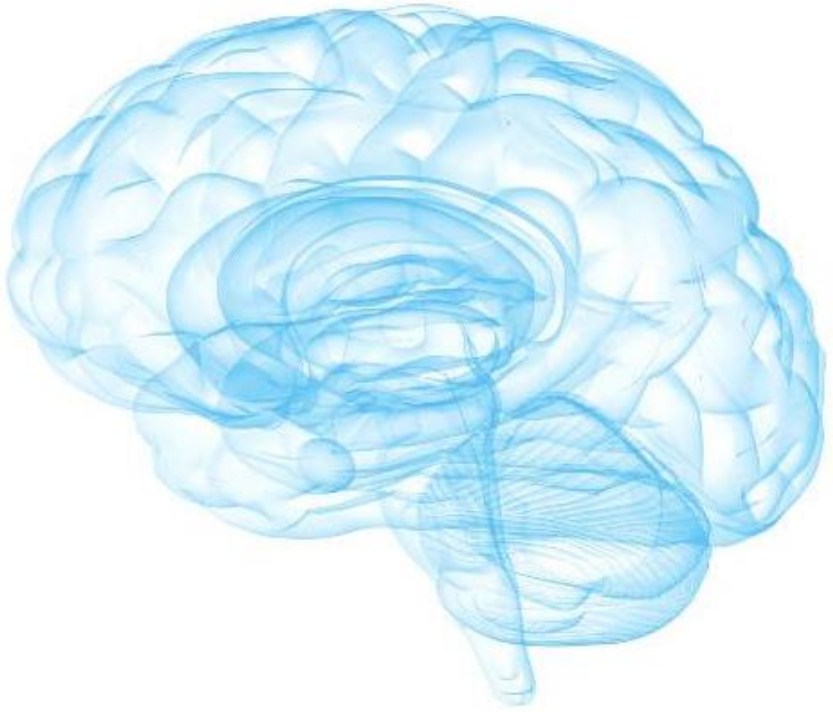
EF and Academic/Job Performance

Research about EF as ability, behavior, and SE

Conclusions

EF is a Brain-Based Ability

- If we define intelligence from a neurocognitive perspective
- EF is an ability (type of intelligence) by virtue of its relationship to the brain
- But EF is not measured by traditional IQ tests



PASS Neurocognitive Theory of Intelligence

28

Cognitive Assessment System: Redefining Intelligence From a Neuropsychological Perspective

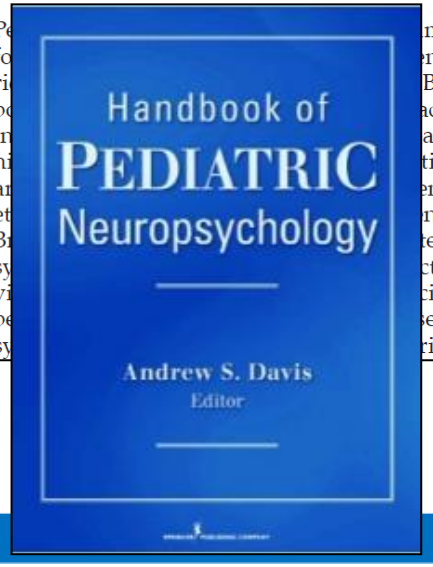
Jack A. Naglieri and Tulio M. Otero

INTRODUCTION

Such tools 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 question of prognosis.

FROM NEUROPSYCHOLOGY THEORY TO ASSESSMENT

Luria's theoretical account of dynamic brain function is perhaps one of the most complete (Lewandowski & Scott, 2008). Luria conceptualized four interconnected levels of brain–behavior relationships and neurocognitive disorders that the clinician needs to know: the structure of the brain, the functional organization based on structure,



20

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

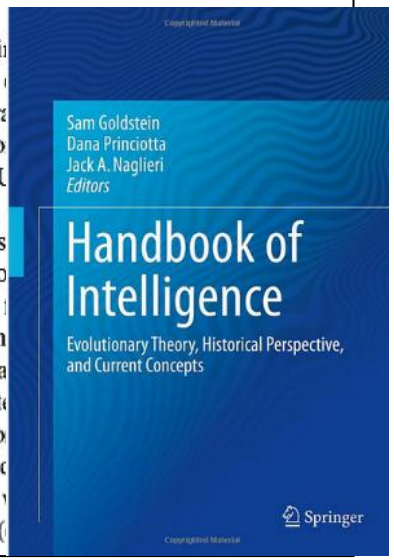
Jack A. Naglieri

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

–Ralph Waldo Emerson

Context

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



PASS Theory Based on Luria's Concept of Functional Units

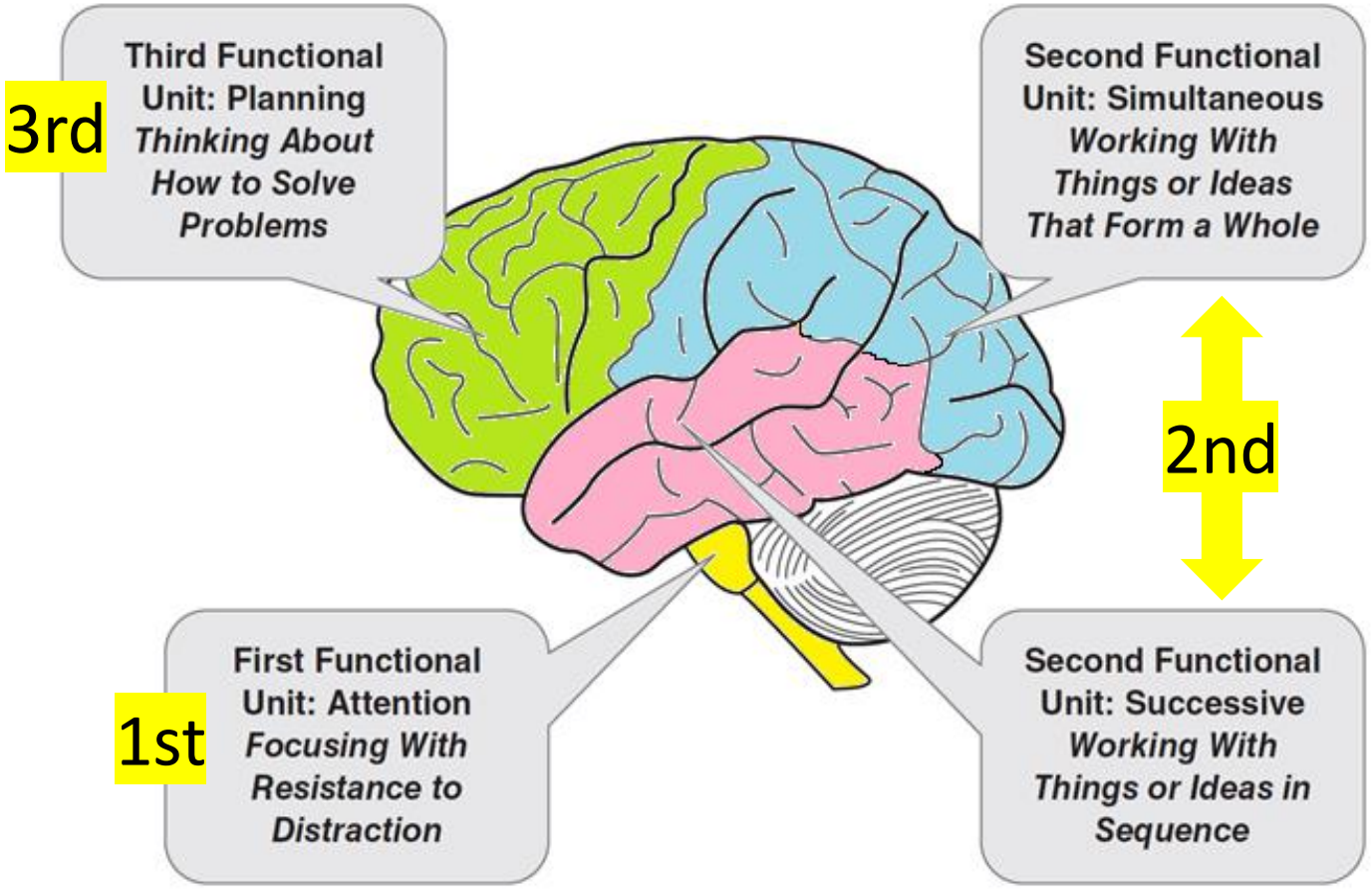
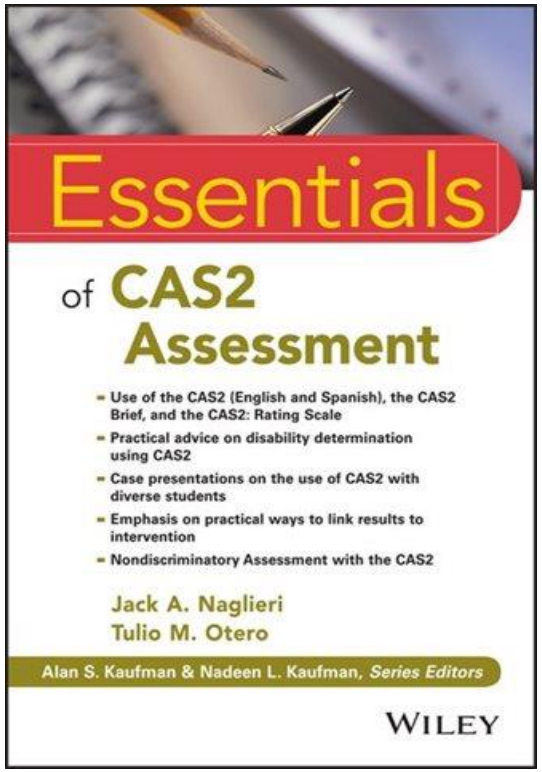


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

IQ defined by BRAIN function

- **PASS** theory is a modern way to define 'ability' (AKA – intelligence)
- **P**lanning = THINKING ABOUT HOW TO DO WHAT YOU DECIDE TO DO
- **A**ttention = BEING ALERT
- **S**imultaneous = GETTING THE BIG PICTURE
- **S**uccessive = FOLLOWING A SEQUENCE



PASS Comprehensive System

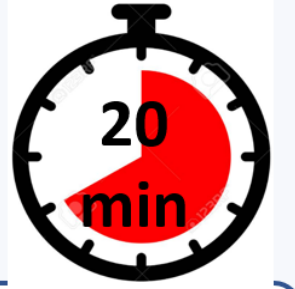
(Naglieri, Das, & Goldstein, 2014)

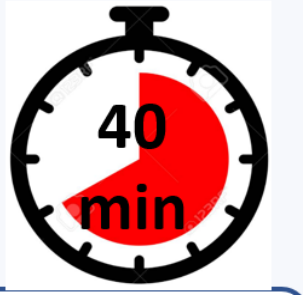
Ways to Measure PASS

CAS2 Core & Extended English & Spanish for comprehensive Assessment

CAS2 Brief for re-evaluations, instructional planning, gifted screening

CAS2 Rating Scale for teacher ratings





CAS2 Rating Scale
(4 subtests)

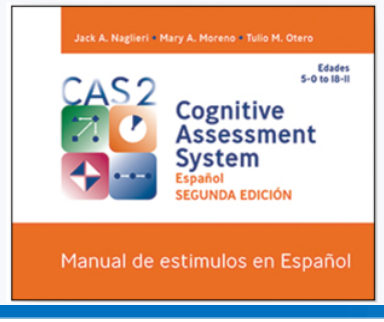
Total Score
Planning
Simultaneous
Attention
Successive

CAS2 Brief
(4 subtests
20 minutes)

Total Score
Planning
Simultaneous
Attention
Successive

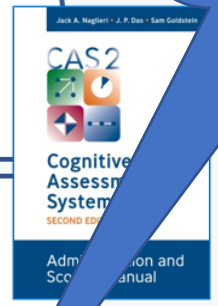
CAS2 Core
(8 subtests
40 minutes)

Full Scale
Planning
Simultaneous
Attention
Successive



CAS2 Extended
(12 subtests
60 minutes)

Full Scale
Planning
Simultaneous
Attention
Successive
Supplemental Scales
Executive Function
Working Memory
Verbal / Nonverbal
Visual / Auditory
Speed / Fluency



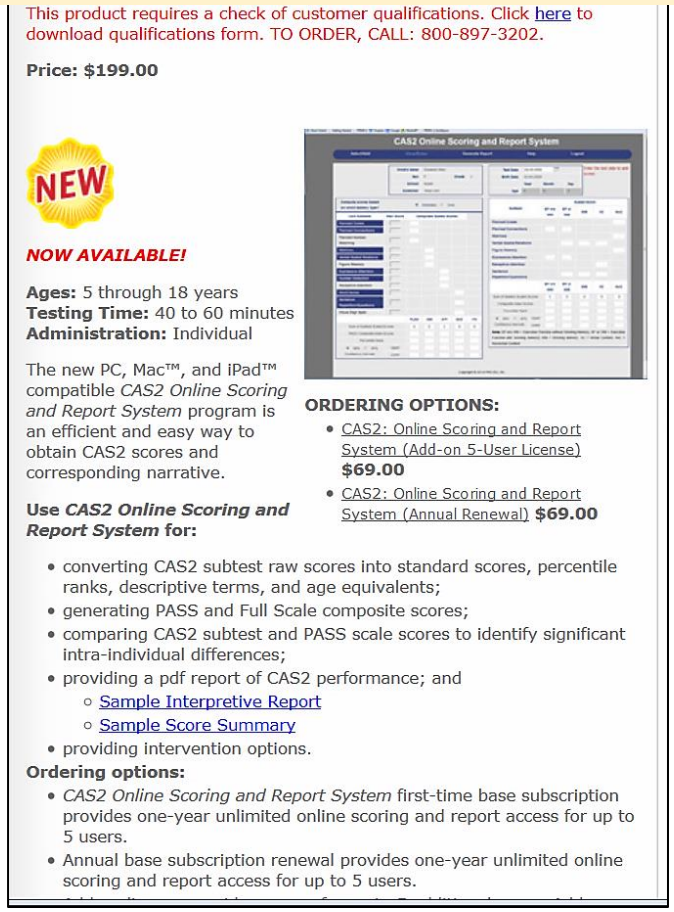
CAS2 Digital (English & Spanish) coming in 2022

Executive Function Score

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



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 5-User License) **$69.00**
- CAS2: Online Scoring and Report System (Annual 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 pdf report of CAS2 performance; and
  - Sample Interpretive Report
  - Sample Score Summary
- providing intervention options.

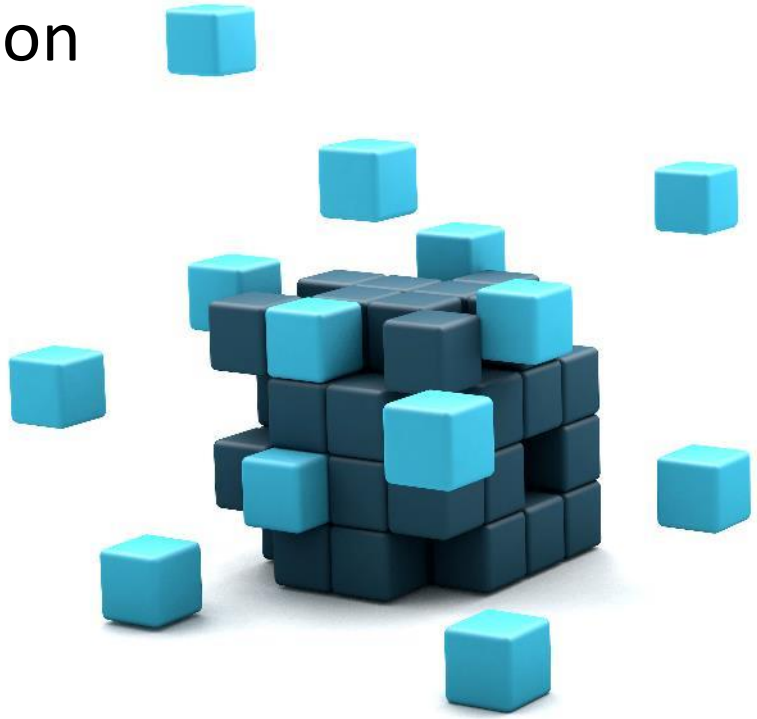
Ordering options:

- *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.

TIME TO STRETCH

PASS Theory: Planning

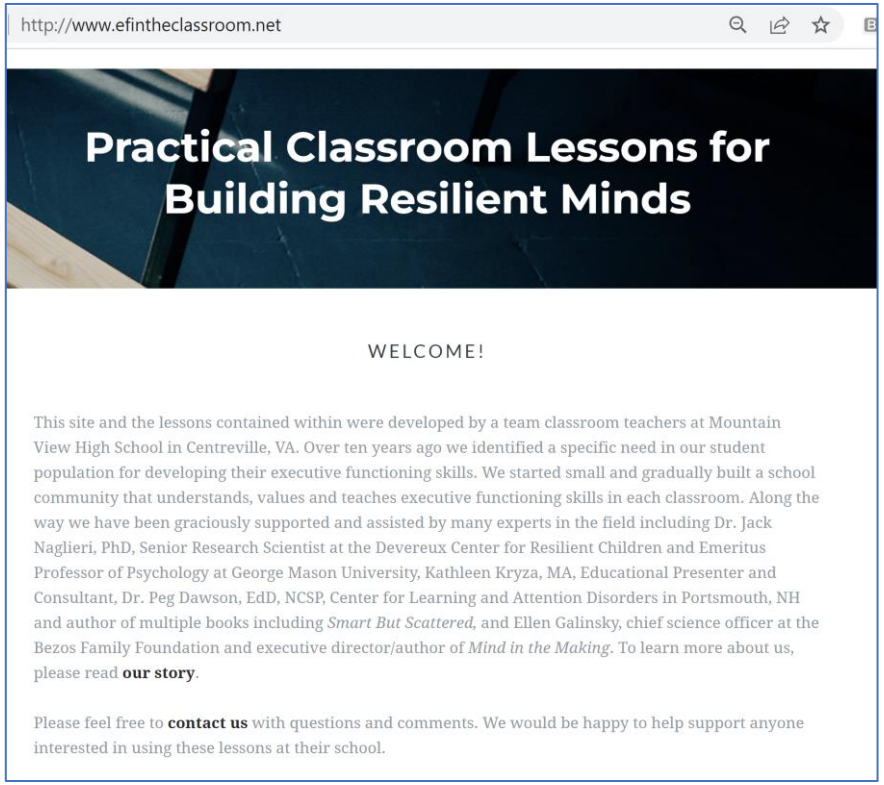
- **Planning** is a neurocognitive ability that a person uses to determine, select, and use efficient solutions to problems
  - problem solving
  - developing plans and using strategies
  - retrieval of knowledge
  - impulse control and self-control
  - control of processing
- Planning tests measure Executive Function



www.efintheclassroom.net

Interventions for EF Behaviors

CEFI Scales	Efintheclassroom.net
Attention	Sustained Attention
Emotion Regulation	Emotional Control
Flexibility	Cognitive Flexibility
Inhibitory Control	Response Inhibition
Initiation	Task Initiation
Organization	Organization
Planning	Planning
Self-Monitoring	Response Inhibition
Working Memory	Working Memory



Antwerp train Station (2009)

Planning Lesson Student Responses

Q 1: What would you have to plan out?

- They had to learn the dance steps (knowledge)
- Someone had to start dancing (initiation)

Q2: What are the parts of a good plan?

- Think of possible problems (strategy generation)
- Organize the dance (organization)

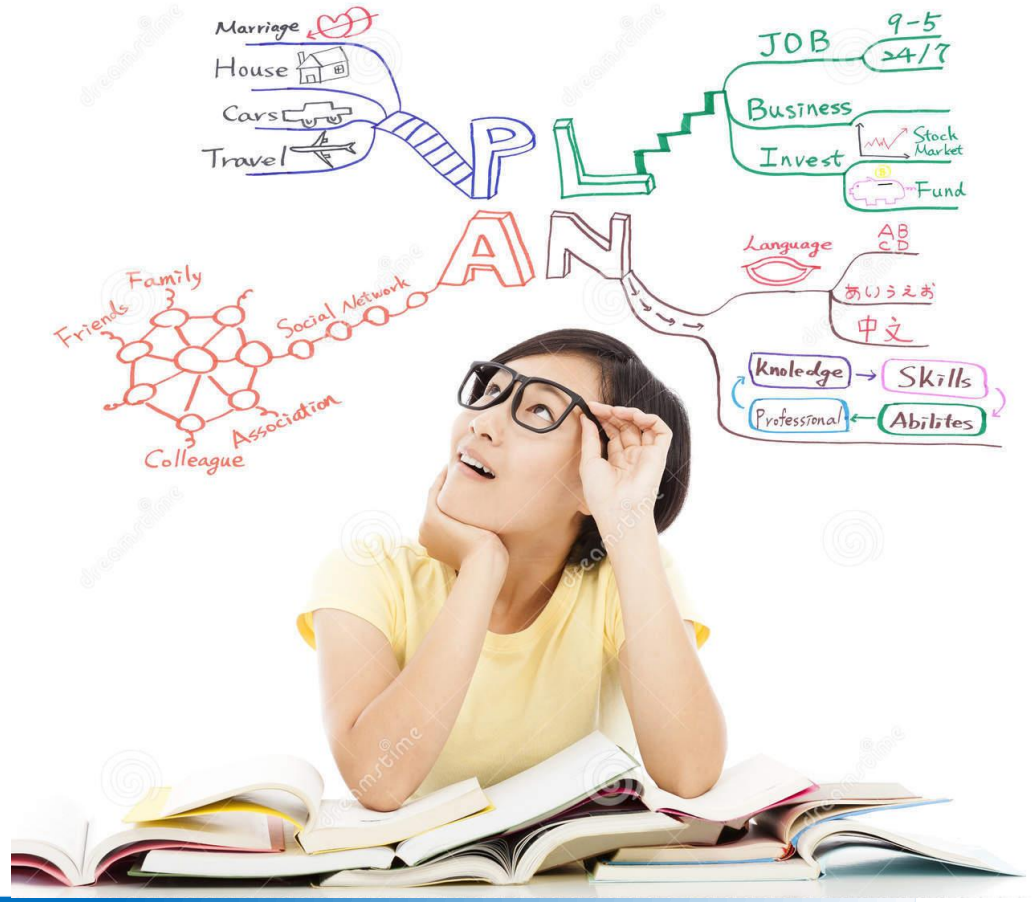
Planning Lesson Student Responses

Q3: How do you know if a plan is any good?

- Put the plan in action and see if it works (self-monitoring)
- Give it a try (perhaps learn by failing)

Q4: What should you do if a plan isn't working?

1. Fix it. (self-correction)
2. Go home! (a bad plan)



Planning Lesson Student Responses

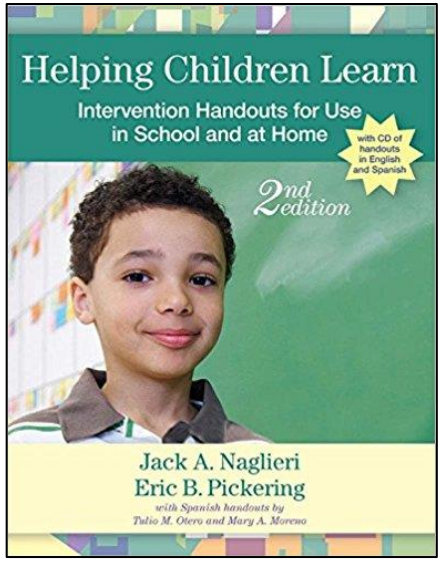
Q5: How do you use planning in this class?

1. We don't plan in this class
2. Mrs. X does all the planning in this class so you don't have to think about planning

To encourage EF we have to stress thinking about *how to do what **you** chose to do*

Encourage Planning

- Helping Children Learn Intervention Handouts for Use in School and at Home, *Second Edition* By Jack A. Naglieri & Eric Pickering
- Spanish handouts by Tulio Otero & Mary Moreno



Step 1 – Talk with Students

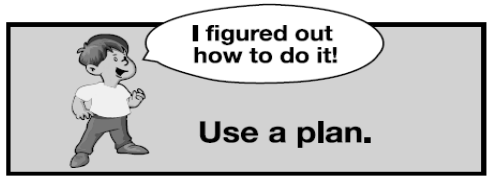
How Can You Be Smarter?

You can be smarter if you PLAN before doing things. Sometimes people say, "Look before you leap," "Plan your work and work your plan," or "Stop and think." These sayings are about using the ability to plan. When you stop and think about *how* to study, you are using your ability to plan.

You will be able to do more if you remember to use a plan. An easy way to remember to use a plan is to look at the picture "Think smart and use a plan!" (Figure 1). You should always use a plan for reading, vocabulary, spelling, writing, math problem solving, and science.

Do you have a favorite plan for learning spelling words? Do you use flashcards or go on the Internet to learn? Do you ask the teacher or another student for help? You can learn more by using a plan for studying that works best for you.

Think smart and use a plan!



It is smart to have a plan for doing all schoolwork. When you read, you should have a plan. One plan is to look at the questions you have to answer about the story first. Then read the story to find the answers. Another plan is to make a picture of what you read so that you can see all the parts of the story. When you write you should also have a plan. Students who are good at writing plan and organize their thoughts first. Then they think about what they are doing as they write. Using a plan is a good way to be smarter about your work!

Planning Facilitation for Math Calculation

Math calculation is a complex activity that involves recalling basic math facts, fol
dures, working carefully, and checking one's work. Math calculation requires a c
approach to follow all of the necessary steps. Children who are good at math ca
move on to more difficult math concepts and problem solving with greater ease
are having problems in this area. For children who have trouble with math calcul
that helps them approach the task planfully is likely to be useful. Planning facilita
technique.

Planning facilitation helps students develop useful strategies to carefully complet
through discussion and shared discovery. It encourages students to think about
problems, rather than just think about whether their answers are correct. This he
careful ways of doing math.

How to Teach Planning Facilitation

Planning facilitation is provided in three 10-minute time periods: 1) 10 minutes o
utes of discussion, and 3) 10 more minutes of math. These steps can be describ

Step 1: The teacher should provide math worksheets for the students to comple
10-minute session. This gives the children exposure to the problems and ways t
teacher gives each child a worksheet and says, "Here is a math worksheet for y
try to get as many of the problems correct as you can. You will have 10 minutes
on this instruction are okay, but do not give any additional information.

Hammill Institute on Disabilities

Journal of Learning Disabilities
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http://journaloflearningdisabilities
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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[1] and Jack A. Naglieri[1]

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 [illegible] development and application of effective planning for mathematical computation, v[illegible] standard math instruction. Standardized tests of cognitive processes and math [illegible] students completed math worksheets throughout the experimental phase. Stan[illegible] *Johnson Tests of Achievement, Third Edition*, Math Fluency and *Wechsler Individu*[illegible] Numerical Operations) were administered pre- and postintervention, and Math [illegible] follow-up. Large pre–post effect sizes were found for students in the experimental[illegible] math worksheets (0.85 and 0.26), Math Fluency (1.17 and 0.09), and Numerical O[illegible] At 1 year follow-up, the experimental group continued to outperform the compa[illegible] students with ADHD evidenced greater improvement in math worksheets, far[illegible] (which measured the skill of generalizing learned strategies to other similar tasks[illegible] when provided the PASS-based cognitive strategy instruction.

QUESTIONS about Interventions ?

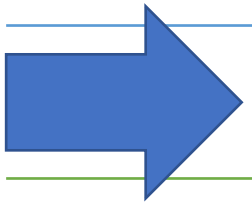
Core Group Discussion → Deeper Learning

- Discuss: what stands out as the most important message from what we have discussed so far

Introduction to Executive Function (EF)

EF Behaviors

EF and Cognition (intelligence)



EF and Social Emotional Skills

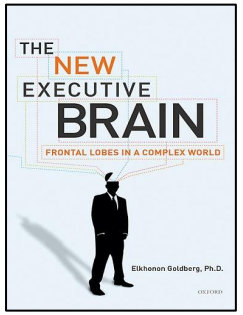
EF and Academic/Job Performance

Research about EF as ability, behavior, and SE

Conclusions

- Phineas had profound social emotional problems after his injury to the frontal lobes
- Phineas was
    - Insulting
    - impulsively says things
    - uses vulgar language
    - can’t manage his emotions
    - inconsistent in social situations
    - doesn’t recognize he is offensive
    - looses control in interactions with others

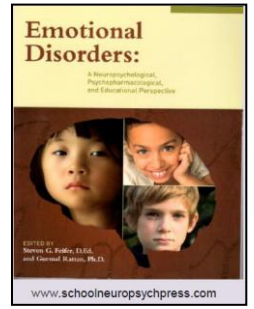
Frontal Lobes and Emotion

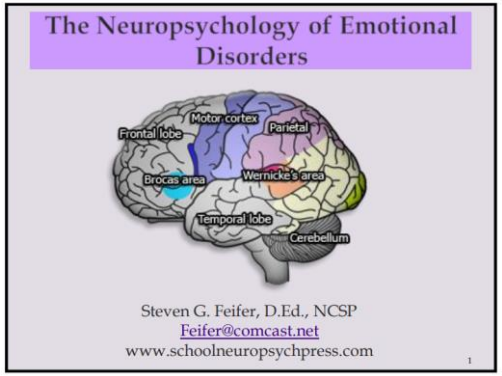


Goldberg (2011, p 116-117)

- the “emphasis in the classic studies of frontal lobe syndromes was on cognition [intelligence] rather than on affect [social emotional]”
- ‘very few researchers have attempted to merge cognitive and emotional aspects of frontal lobe dysfunction’

- Feifer’s Emotional Disorders book contains a collection of papers on the relationship between EF and Emotional Disorders





- And see Feifer@comcast.net

EF and Self Regulation (Feifer)

- Self-Regulation problems in Behavior, Emotion and Attention are neurocognitive expression of difficulty with Executive Function

ED and Self Regulation

*Children with emotional disturbances tend to be unsuccessful in school due in part to a lack self regulation skills in one or more of the following domains:

a) **Behavioral Self-Regulation** – poor inhibition of impulses and motor control.
b) **Emotional Self-Regulation** - and inability to self-regulate moods and reactions to social situations.
c) **Attention Self-Regulation** – an inability to modulate and sustain attention.

* A **neuropsychological approach** does not try to put semantic labels on observable behavior, but instead tries to identify core brain regions responsible for the dysfunction.

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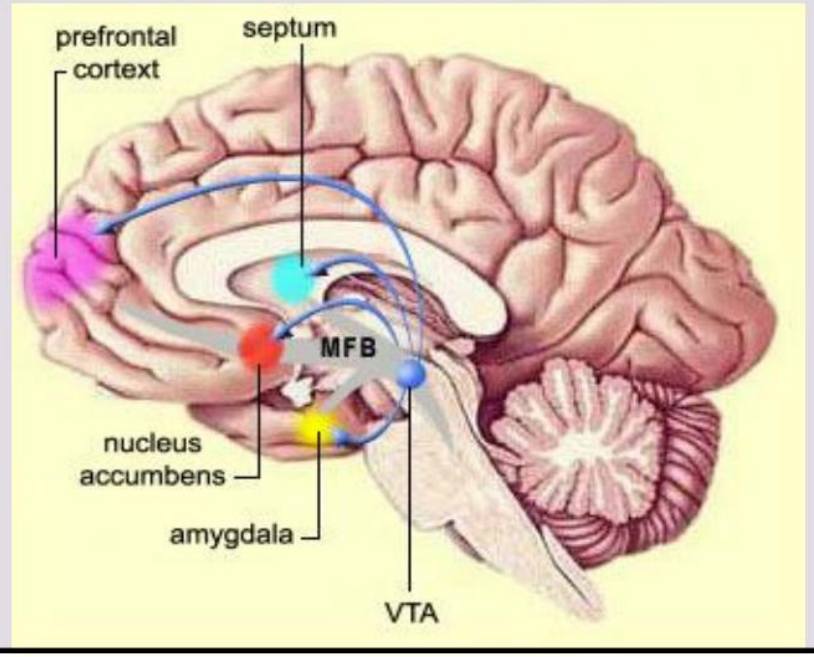
The Cerebral Orchestra of Emotions: Subcortical Regions



22

The Cerebral Orchestra of Emotions: Cortical Regions

(1) Orbitofrontal cortex - region of the brain responsible for ascribing an emotional valence or value judgment to another's feelings. Often triggers an automatic social skills response (Rolls, 2004).

* Has rich interconnections with the limbic system.
* Responsible for ***emotional executive functioning***.
* Self-regulation of behavior as highest levels of emotional decision making dictated by this brain region.

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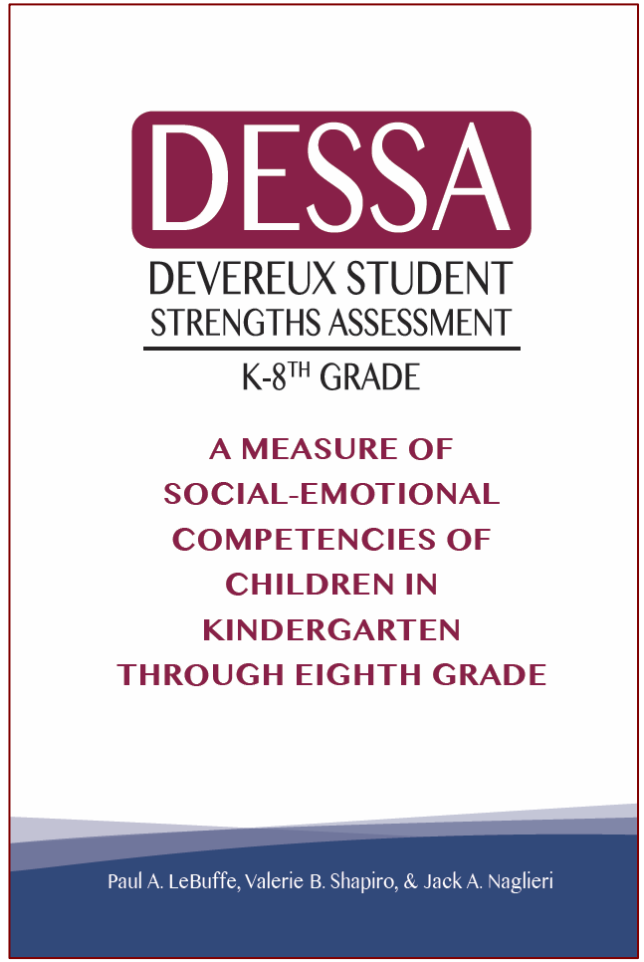
Emotions and the Frontal Lobe

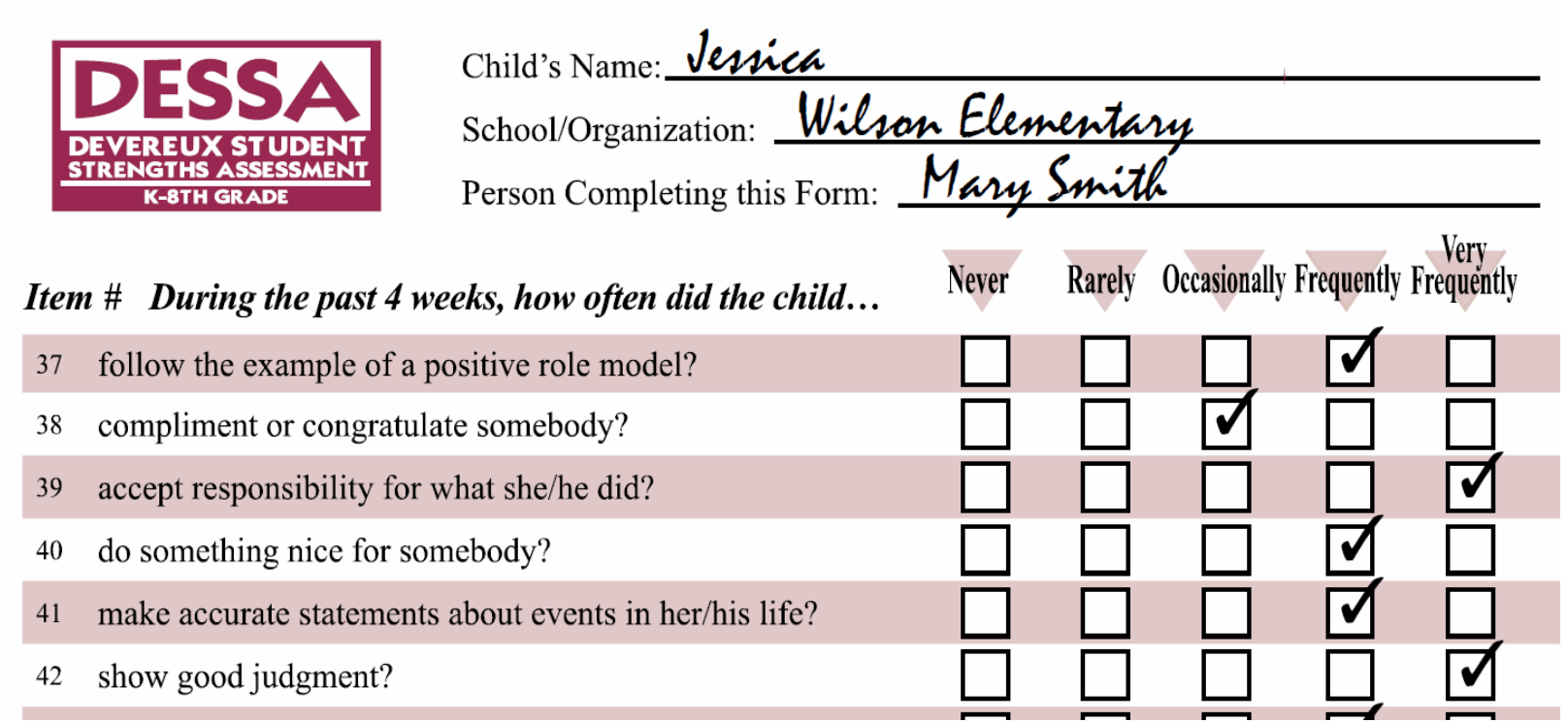
Emotional Executive Functioning

The Devereux Student Strengths Assessment (DESSA)

- Based on the concept of resilience & SEL principles described by CASEL
  - Identify social-emotional strengths and needs of elementary and middle school children (for K-8th grade)
  - 72 items and 8 scales
  - Completed by parents, teachers, and/or after-school / community program staff
  - Takes 15 minutes to complete
  - On-line administration, scoring and reporting available



DESSA Rating Form (72 items)



Item #	During the past 4 weeks, how often did the child…	Never	Rarely	Occasionally	Frequently	Very Frequently
37	follow the example of a positive role model?	☐	☐	☐	☑	☐
38	compliment or congratulate somebody?	☐	☐	☑	☐	☐
39	accept responsibility for what she/he did?	☐	☐	☐	☐	☑
40	do something nice for somebody?	☐	☐	☐	☑	☐
41	make accurate statements about events in her/his life?	☐	☐	☐	☑	☐
42	show good judgment?	☐	☐	☐	☐	☑

CASEL and DESSA Scales

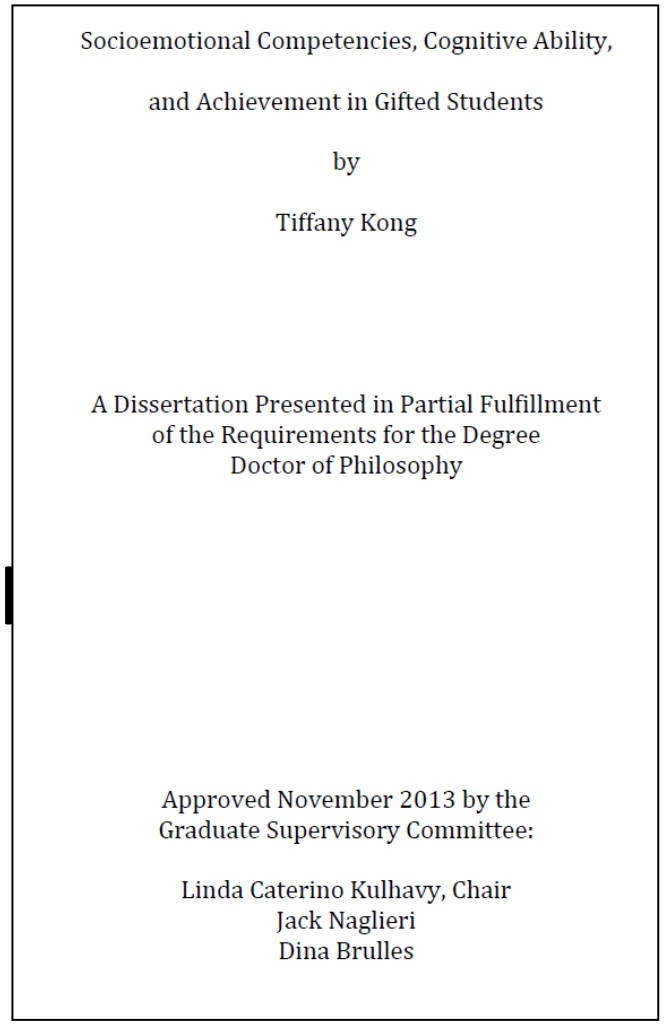
1. **Self-awareness**—being able to ac
and strengths; maintaining a well-
2. **Self-management**—being able to
control impulses, and persevere i
progress toward personal and ac
3. **Social awareness**—being able to
others; recognizing and appreciat
differences; recognizing and usin
4. **Relationship skills**—being able t
relationships based on cooperatio
preventing, managing, and resolv
needed
5. **Responsible decision-making**—h
consideration of reason, ethical
for self and others, and likely con
making skills to academic and so
one's school and community.[1]

Social Emotional Composite

- **Self Awareness**
- **Self Management**
- **Social Awareness**
- **Relationship Skills**
- **Decision Making**
- **Goal Directed Behavior**
- **Personal Responsibility**
- **Optimistic Thinking**

Kong (2013): IQ, SEL & Achievement

- Tiffany Kong studied CogAT, DESSA, and achievement scores for 276 elementary students grades K-8
- All gifted based on scores on verbal, quantitative, or nonverbal test scores at least 97th percentile



Socioemotional Competencies, Cognitive Ability,

and Achievement in Gifted Students

by

Tiffany Kong

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved November 2013 by the
Graduate Supervisory Committee:

Linda Caterino Kulhavy, Chair
Jack Naglieri
Dina Brulles

Kong (2013): IQ, SEL & Achievement

- Mean IQ score = 129.6 nearly 2 SDs above the normative mean (achievement also high)

- Mean SEL score on DESSA was only ½ SD above the normative mean (T = 55.5)

Table 1

Means and Standard Deviations of Study Variables

Construct	Mean	*SD*
Age	10.96	1.81
DESSA Total	55.51	9.41
Verbal	125.69	13.74
Quantitative	124.41	10.34
Nonverbal	125.10	12.56
CogAT Composite	129.61	8.22
Reading	75.56	15.72
Language	69.46	19.60
Math	76.30	17.13
SAT10 Achievement Composite	73.77	12.66

Kong (2013): IQ, SEL & Achievement

- DESSA Total score correlated .44 with Total Achievement (reading, math, language) and the CogAT Total correlated .36
  - A clearer picture of the relationships between IQ (CogAT) and SEL (DESSA) with achievement was obtained from hierarchical regression analysis…

Kong (2013) SEL Predicts Beyond IQ (p. 44)

DESSA predicted reading, language and math scores over IQ (CogAt) scores

Relations between Cognitive Ability, Socioemotional Competency, and Achievement Variables

Hierarchical regression analyses were conducted to determine which scales and subtests predicted the most variance in the dependent achievement variables. Composite CogAT scores were not found to significantly predict composite achievement, $R^2\Delta = .03$, $F(1, 121) = 3.27$, $p > .05$, reading, language, or math scores over-and-above the DESSA Total scores (Table 11). On the other hand, the DESSA Total scores significantly predicted composite achievement, $R^2\Delta = .05$, $F(1, 121) = 6.99$, $p < .05$; language scores, $R^2\Delta = .03$, $F(1, 121) = 4.26$, $p < .05$; and math scores, $R^2\Delta = .05$, $F(1, 121) = 6.09$, $p < .05$, over-and-above the composite CogAT scores.

- Social Emotional Skills are the result of EF and what the person has learned in all aspects of the environment

- Individuals CAN BE TAUGHT good, or bad, social emotional skills

- Your Comments? Questions?

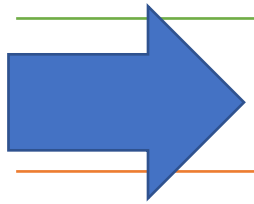
Presentation Outline

Introduction to Executive Function (EF)

EF Behaviors

EF and Cognition (intelligence)

EF and Social Emotional Skills



EF and Academic/Job Performance

Research about EF as ability, behavior, and SE

Conclusions

EF in the Classroom

- Consider any task that requires the student to figure out HOW to complete a task such as:
  - Writing a story
  - Coming up with several ways of solving a math problem
  - Organizing a complex set of items, thoughts, tasks
  - Reading comprehension and inferential test questions
  - When strategies are needed for any academic task
  - How to study
  - How to prepare for a test
  - Etc.

- See www.jacknaglieri.com for papers on CAS2, Feifer Assessments of Reading, Math, and Writing

Correspondence of FAR and PASS	Planning	Attention
Phonemic Awareness - measures rhyming, blending, segmenting, and manipulating sounds.		
Positioning Sounds - a phonemic localization task determining sound positions.		
Nonsense Word Decoding - the student decodes a series of nonsense words.		
Isolated Word Reading Fluency - the student reads a list of words in 60 seconds.		
Oral Reading Fluency - the student reads a passage composed of the same words as the Isolated Word Reading Fluency task.		
Rapid Automatic Naming - the student names either objects, letters, or stencils.		
Visual Perception - the student identifies letters or words printed backwards from an array.		X
Verbal Fluency - the student retrieves words from a category, or items that start with a letter.	X	X
Orthographic Processing - the student recalls a letter, or group of letters, from a target word.		X
Irregular Word Reading Fluency - the student reads a list of phonologically irregular words.		
Semantic Concepts - the student identifies the correct antonym or synonym of a target word.	X	
Word Recall - the student repeats back a list of words over two trials.	X	X
Morphological Processing - the student selects the correct prefix, suffix, or stem that completes a target word.		
Silent Reading Fluency - the student answers questions after reading a passage silently.	X	X

Correspondence of FAM and PASS	Planning	Attention
Phonemic Awareness - measures rhyming, blending, segmenting, and manipulating sounds.		
Positioning Sounds - a phonemic localization task determining sound positions.		
Nonsense Word Decoding - the student decodes a series of nonsense words.		
Isolated Word Reading Fluency - the student reads a list of words in 60 seconds.		
Oral Reading Fluency - the student reads a passage composed of the same words as the Isolated Word Reading Fluency task.		
Rapid Automatic Naming - the student names either objects, letters, or stencils.		
Visual Perception - the student identifies letters or words printed backwards from an array.		X
Verbal Fluency - the student retrieves words from a category, or items that start with a letter.	X	X
Orthographic Processing - the student recalls a letter, or group of letters, from a target word.		X
Irregular Word Reading Fluency - the student reads a list of phonologically irregular words.		
Semantic Concepts - the student identifies the correct antonym or synonym of a target word.	X	
Word Recall - the student repeats back a list of words over two trials.	X	X
Morphological Processing - the student selects the correct prefix, suffix, or stem that completes a target word.		
Silent Reading Fluency - the student answers questions after reading a passage silently.	X	X

Note: The correspondence of PASS with FAR and FAM needs to be carefully examined for each stud

Presentation Outline

- Introduction to Executive Function (EF)
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- EF and Cognition (intelligence)
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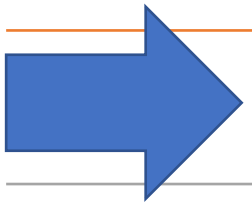
- Conclusions



Executive Function Behaviors, Intelligence, and Achievement test scores

EF, WISC-IV, CAS, Achievement

- Data from Sam Goldstein's evaluation center in Salt Lake City, UT
- Children given the WISC-IV (N = 43), CAS (N = 62), and the WJIII achievement (N = 58) as part of the typical test battery

Demographic Characteristics of the CAS, WISC-IV, and WJ III ACH Validity Samples

Demographic		CAS		WISC-IV		WJ III ACH	
		N	%	*N*	%	*N*	%
Gender	Male	38	61.3	29	67.4	36	62.1
	Female	24	38.7	14	32.6	22	37.9
Race/ Ethnic Group	Hispanic	1	1.6	1	2.3	1	1.7
	Asian	2	3.2	2	4.7	2	3.4
	White	55	88.7	38	88.4	52	89.7
	Other	4	6.5	2	4.7	3	5.2
Parental Education Level	High school diploma or less	1	1.6	0	0.0	1	1.7
	Some college or associate's degree	21	33.9	12	27.9	18	31.0
	Bachelor's degree or higher	36	58.1	26	60.5	34	58.7
	Missing information	4	6.5	5	11.6	5	8.6
Diagnostic or Educational Group	ADHD	24	38.7	15	34.9	20	34.5
	Anxiety	15	24.2	9	20.9	14	24.1
	ASD	7	11.3	5	11.6	7	12.1
	LD	3	4.8	3	7.0	3	5.2
	Mood	4	6.5	3	7.0	5	8.6
	Other	9	4.8	8	4.6	9	5.1
Total		**62**	**100.0**	**43**	**100.0**	**58**	**100.0**
Age *M* (*SD*)		**10.4 (2.9)**		**10.2 (2.6)**		**10.5 (2.7)**	

Note. ADHD = Attention-Deficit/Hyperactivity Disorder; Anxiety = Anxiety Disorder; ASD = Autism Spectrum Disorder; LD = Learning Disorder; Mood = Mood Disorder.

	CAS				
	FS	Plan	Sim	Att	Suc
CEFI					
Full Scale	.45	.49	.43	.37	.32

	WISC-IV				
	FS	VC	PR	WM	PS
CEFI					
Full Scale	.39	.44	.27	.30	.34

	WJ-III Achievement Tests				
CEFI Scales	Total	Broad Reading	Broad Math	Broad Written Language	Median
Full Scale	.51	.48	.49	.47	.49

EF and Achievement (Naglieri & Rojahn, 2004)

- Correlation between Executive Function (Planning + Attention) with achievement = **.51** (N = 1,559) is stable across 5–17-year range
- EF scores added significantly to the prediction of achievement after Simultaneous and Successive scores

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Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample

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ABSTRACT

This study examined age-related changes in complex executive function (EF) in a large, representative sample ($N = 2036$) aged 5 to 17 using the Cognitive Assessment System (CAS; Naglieri & Das, 1997a). Relations between complex EF and academic achievement were examined on a sub-sample ($N = 1395$) given the Woodcock–Johnson Tests of Achievement–Revised (Woodcock & Johnson, 1989). Performance on the three complex EF tasks improved until at least age 15, although improvement slowed with increasing age and varied some across tasks. Moreover, the different developmental patterns in the correlations between completion time and accuracy provide clues to developmental processes. Examination of individual achievement subtests clarified the specific aspects of academic performance most related to complex EF. Finally, the correlation between complex EF and academic achievement varied across ages, but the developmental pattern of the strength of these correlations was remarkably similar for overall math and reading achievement, suggesting a domain-general relation between complex EF and academic achievement.

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2004, Vol. 96, No. 1, 174–181

0022-0663/04/$12.00 DOI: 10.1037/0022-0663.96.1.174

Construct Validity of the PASS Theory and CAS: Correlations With Achievement

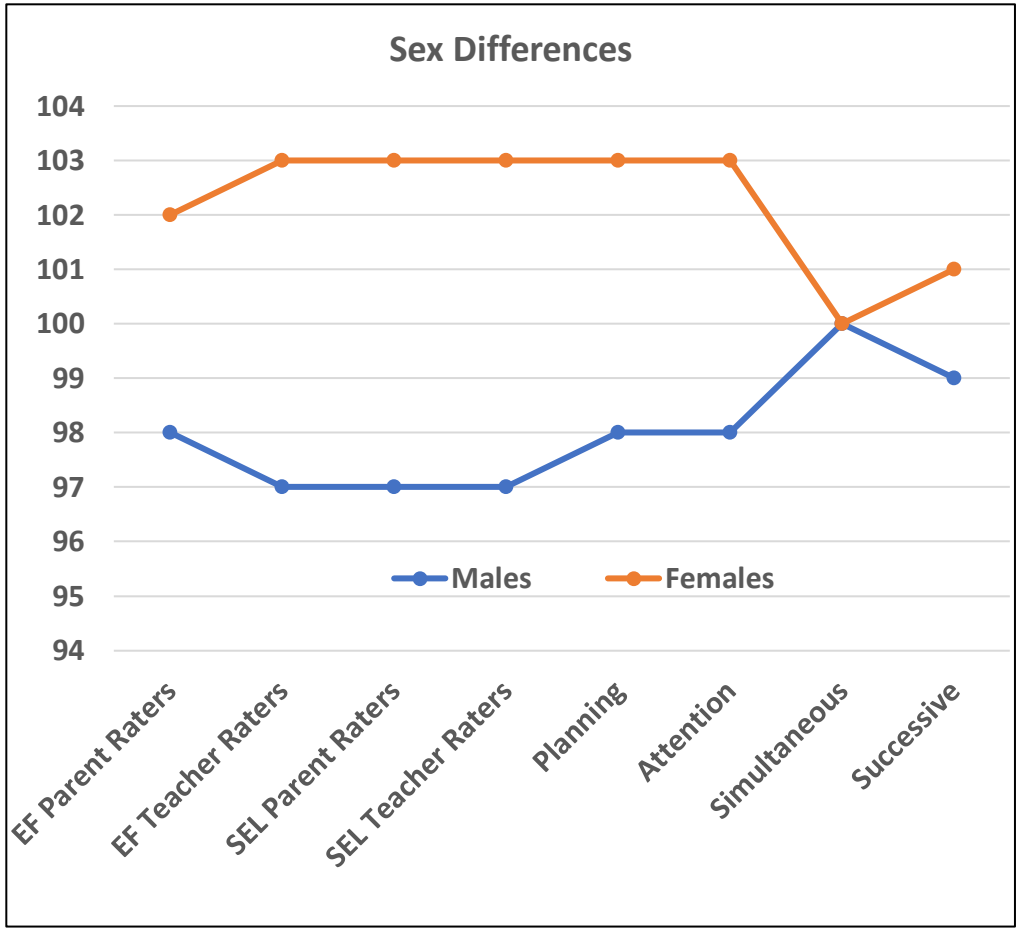
Jack A. Naglieri and Johannes Rojahn
George Mason University

The relationship among Planning, Attention, Simultaneous, and Successive (PASS) processing scores of the Cognitive Assessment System (CAS) and the Woodcock–Johnson Revised Tests of Achievement (WJ-R) were examined with a sample of 1,559 students aged 5–17 years. Participants were part of the CAS standardization sample and closely represented the U.S. population on a number of important demographic variables. Pearson product–moment correlation between CAS Full Scale and the WJ-R Skills cluster was .71 for the Standard and .70 for the Basic CAS Battery scores, providing evidence for the construct validity of the CAS. The CAS correlated with achievement as well if not better than tests of general intelligence. The amount of variance in the WJ-R scores the CAS accounted for increased with age between 5- to 13-year-olds. The 4 PASS scale scores cumulatively accounted for slightly more of the WJ-R variance than the CAS Full Scale score.

There are many ways in which the validity of a theory of cognitive ability may be evaluated. Psychologists often attempt to relate information about a child's cognitive characteristics to that

achievement. For instance, subtests like General Information are also included on individual achievement tests (e.g., the Peabody Individual Achievement Test—Revised; Markwardt, 1997). Sim-

	CEFI	Males	Females	Difference
EF	EF Parent Raters	98	102	4
EF	EF Teacher Raters	97	103	6
	DESSA	Males	Females	Difference
SEL	SEL Parent Raters	97	103	6
SEL	SEL Teacher Raters	97	103	5
	PASS from CAS	Males	Females	Difference
EF	Planning	98	103	5
EF	Attention	98	103	5
	Simultaneous	100	100	0
	Successive	99	101	1



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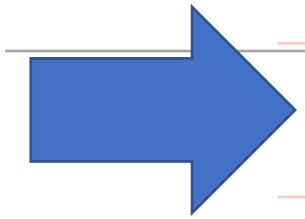


Conclusions

Assessment of EF should be comprehensive and include cognition, behavior and academic skills

We can encourage the use of EF

This is the gift of smarter thinking

This is a gift of optimism

This is a gift for life success

FINAL QUESTIONS ?

PASS Theory Based on Brain Function - Simultaneous Processing

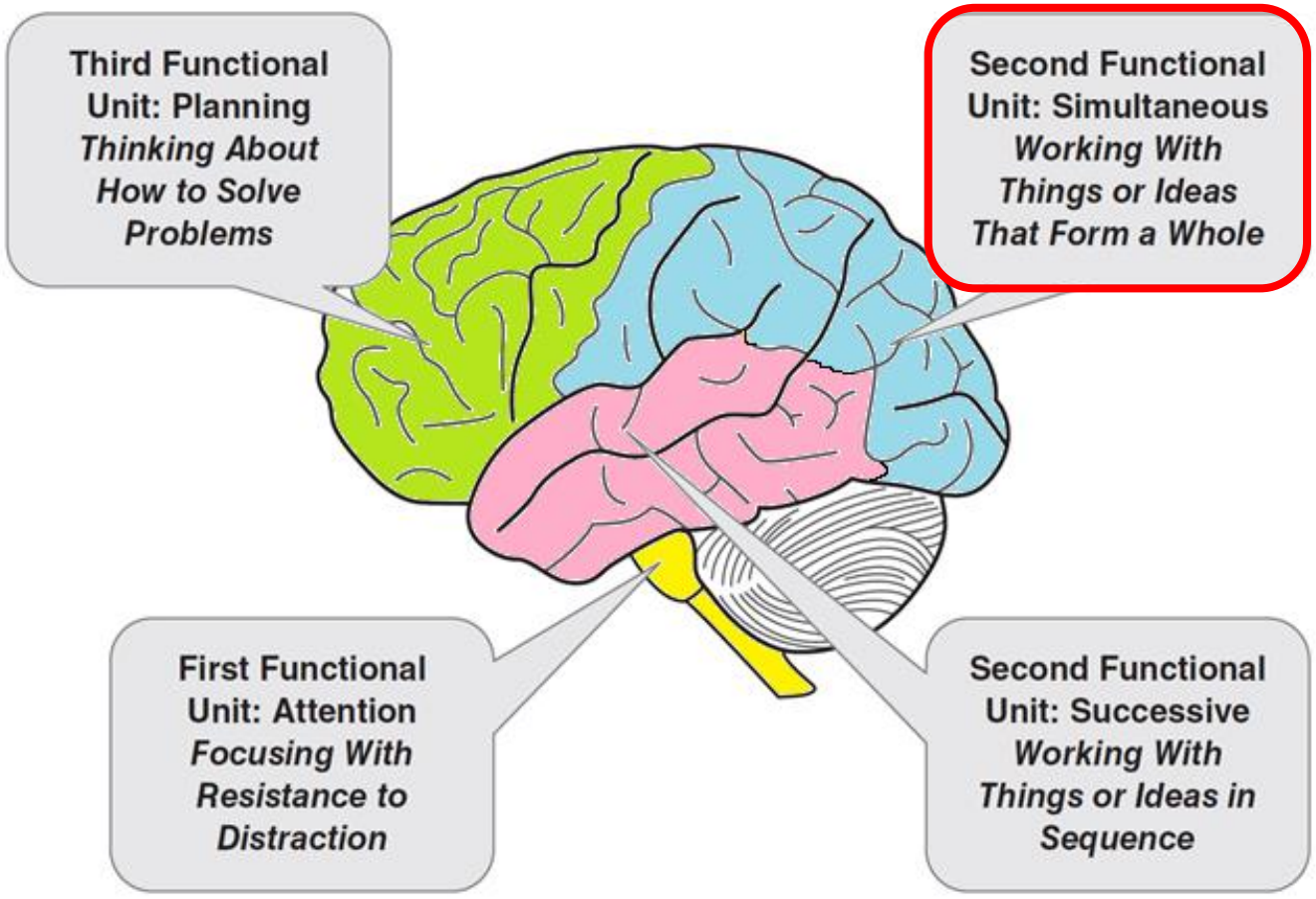


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

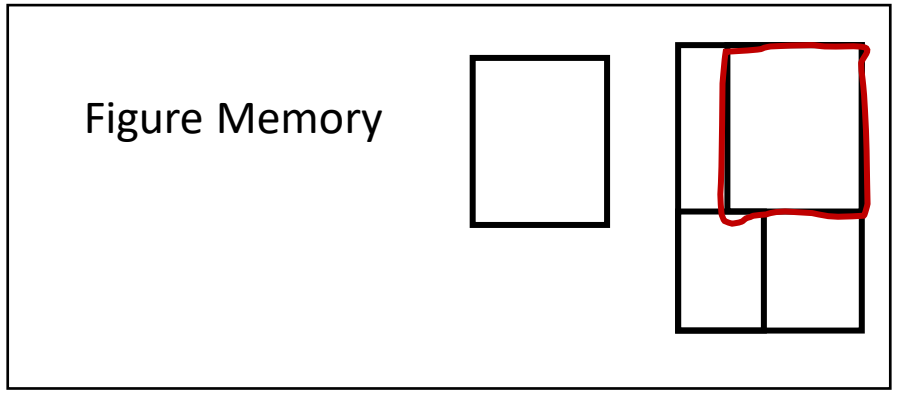
PASS Theory: Simultaneous

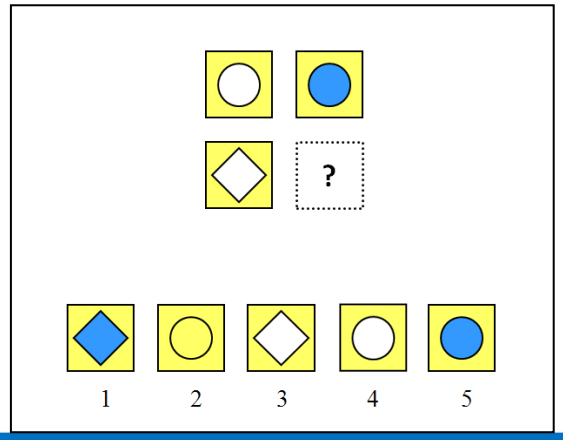
- **Simultaneous** processing is used to integrate stimuli into groups
  - Each piece must be related to the other
  - Stimuli are seen as a whole
- Academics:
  - Reading comprehension
  - geometry
  - math word problems
  - whole language
  - verbal concepts

THINKING REQUIRED:

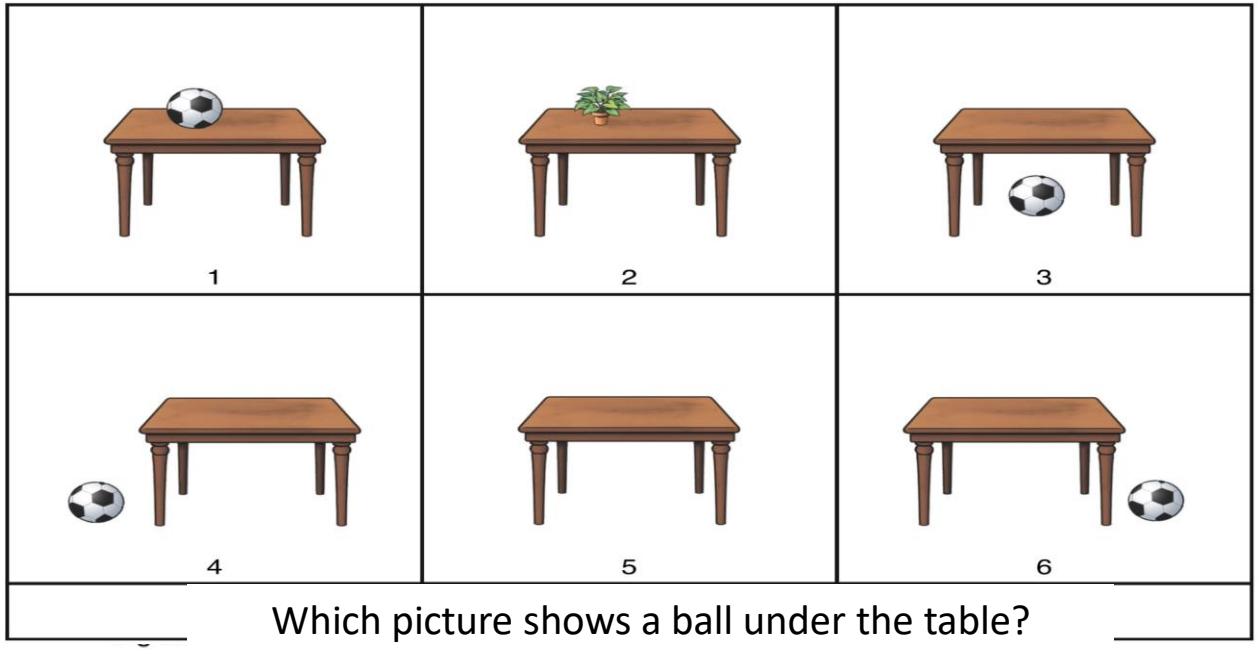
Each Simultaneous Subtest measures the extent to which a student can recognize the relationships among word, ideas, and objects to see the whole to identify the answer

PASS Theory: Simultaneous





Verbal Spatial Relations



PASS Theory Based on Brain Function – Successive Processing

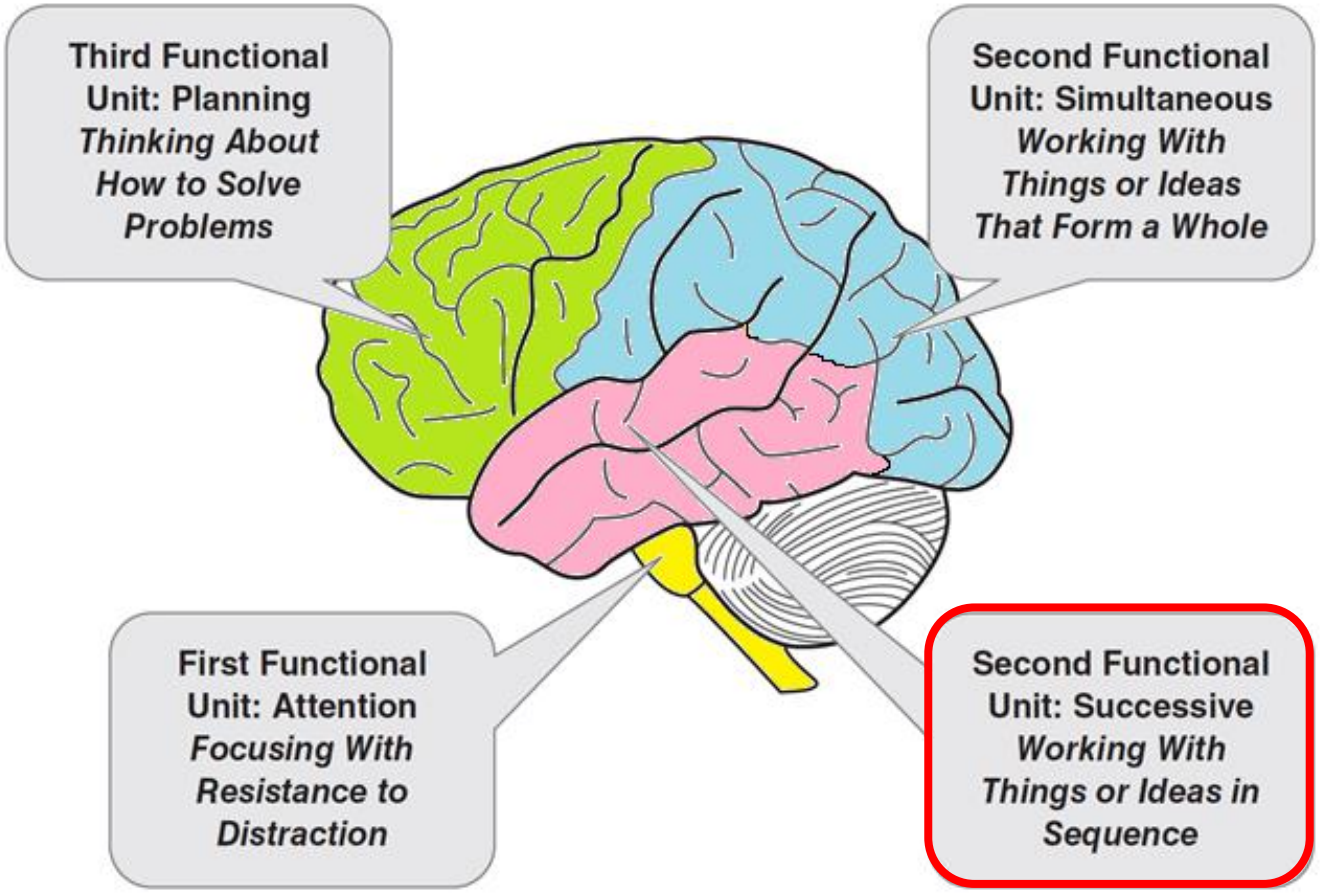


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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
  - Decoding words
  - Letter-sound correspondence
  - Phonological tasks
  - Understanding the syntax of sentences

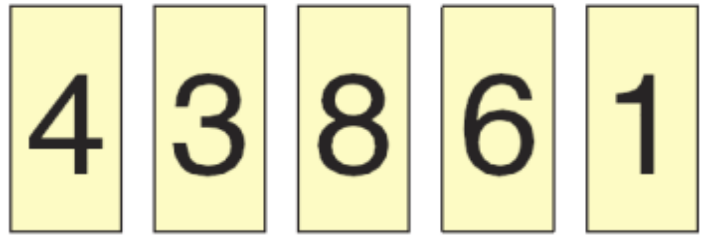
THINKING REQUIRED: Each Successive Subtest measures the extent to which a student can recall or comprehend information when it is arranged in a specific sequence

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
  - Decoding words
  - Letter-sound correspondence
  - Phonological tasks
  - Understanding the syntax of sentences

Word Recall Subtest uses high imagery single syllable words spoken by examiner

Number Recall Subtest



Sentence Questions (8+ yr. olds)

Child answers a question :

The red greened the blue with a yellow. Who got greened?

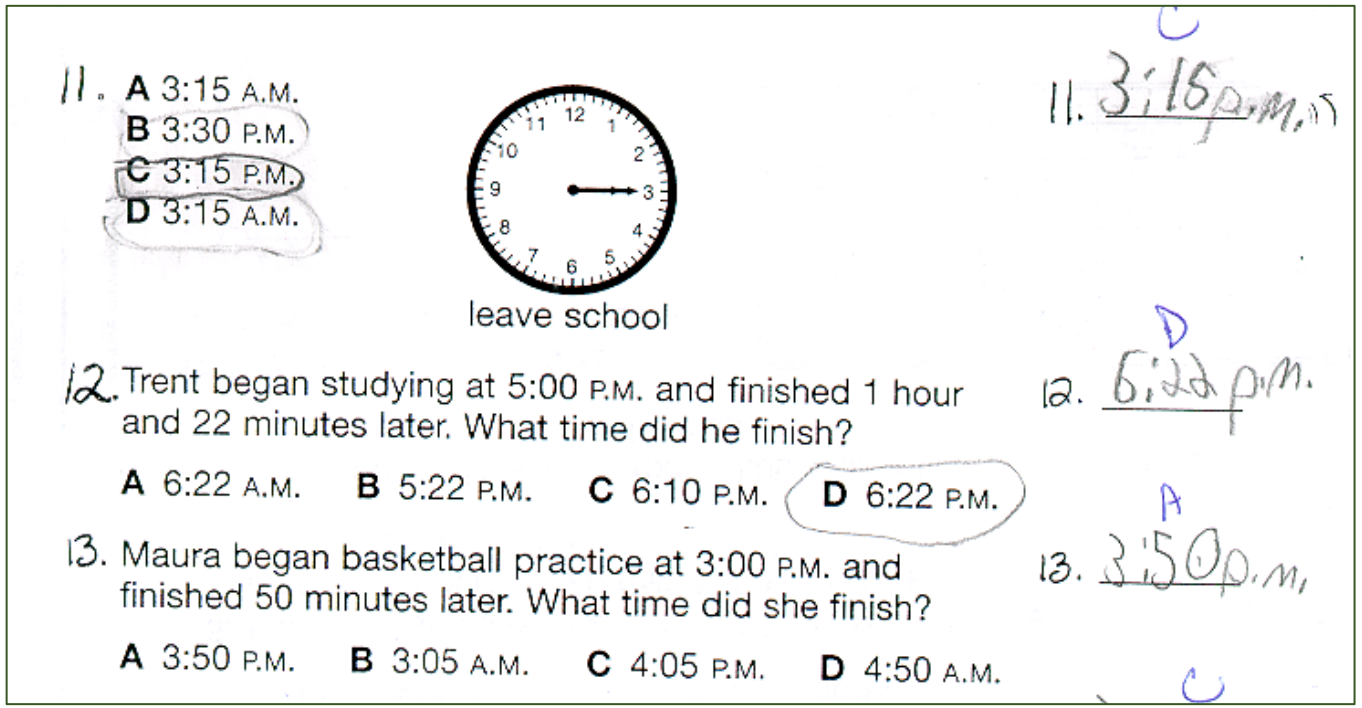
Sentence Repetition (5-7 yr. olds) Child repeats the sentence:

The red greened the blue with a yellow.

Change Demands Courage to Think Differently

Attention and Knowing are being measured

Attention is needed to overcome the similarity of the options



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

leave school

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.

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.

C
11. 3:15 p.m.

D
12. 6:22 p.m.

A
13. 3:50 p.m.

C

PASS Theory Based on Brain Function - Simultaneous Processing

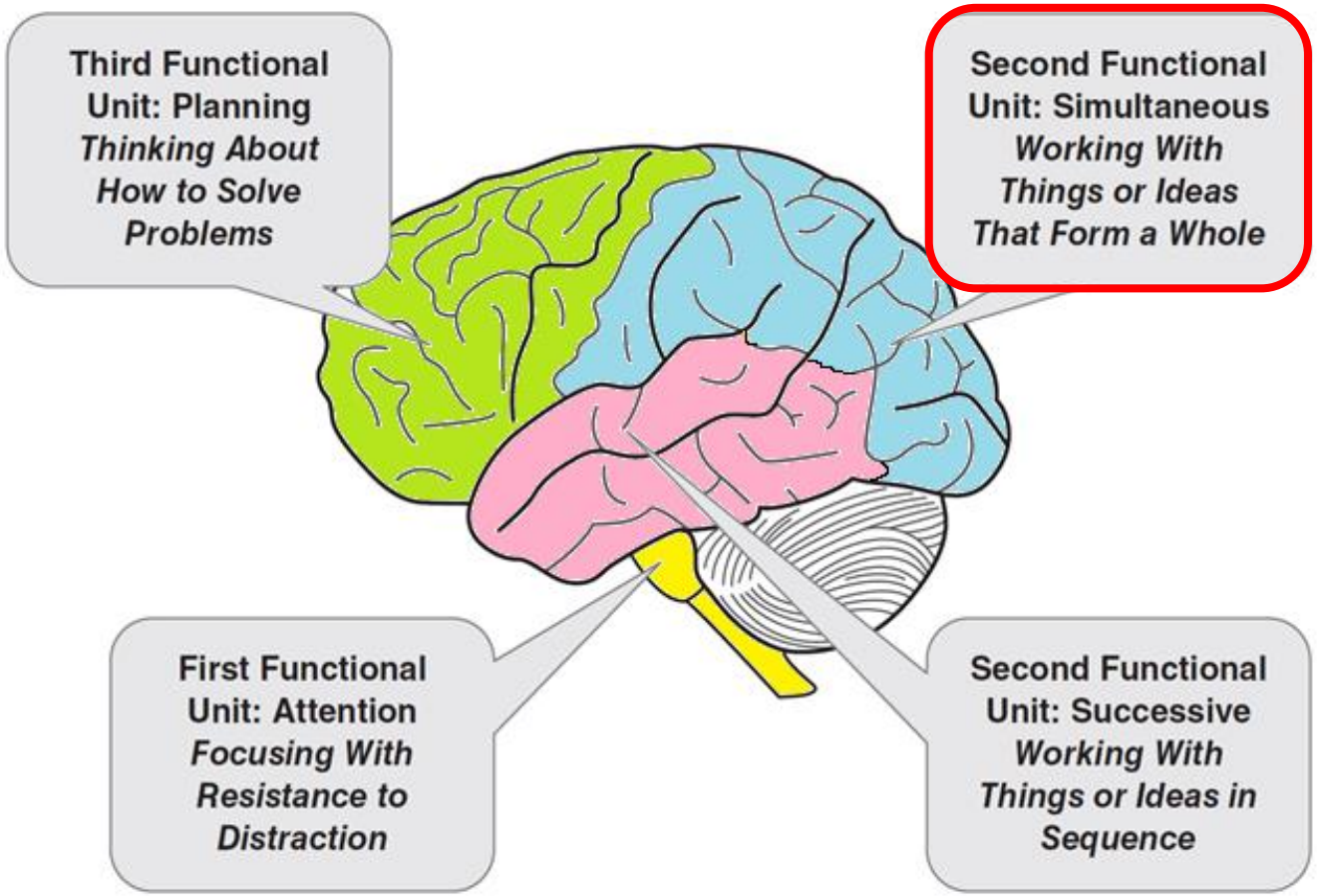
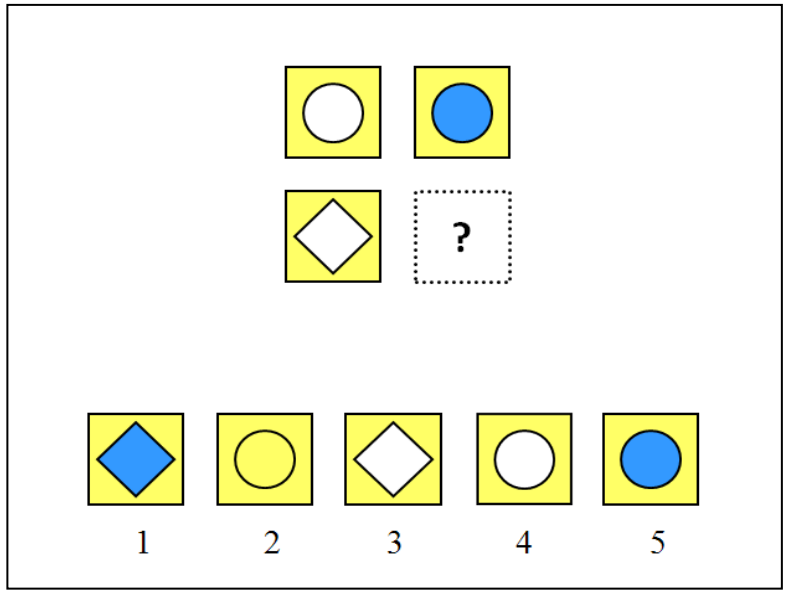


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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



Simultaneous Processing Behaviors

Directions for Items 11–20. These questions ask how well the child or adolescent sees how things go together. They also ask about working with diagrams and understanding how ideas fit together. The questions involve seeing the whole without getting lost in the parts. Please rate how well the child or adolescent visualizes things as a whole.

During the past month, how often did the child or adolescent . . .	Never	Rarely	Sometimes	Frequently	Always
11. like to draw designs?	0	1	2	3	4
12. figure out how parts of a design go together?	0	1	2	3	4
13. classify things into groups correctly?	0	1	2	3	4
14. work well with patterns and designs?	0	1	2	3	4
15. see how objects and ideas are alike?	0	1	2	3	4
16. work well with physical objects?	0	1	2	3	4
17. like to use visual materials?	0	1	2	3	4
18. see the links among several things?	0	1	2	3	4
19. show interest in complex shapes and patterns?	0	1	2	3	4
20. recognize faces easily?	0	1	2	3	4

___ + ___ + ___ + ___ + ___ = ☐

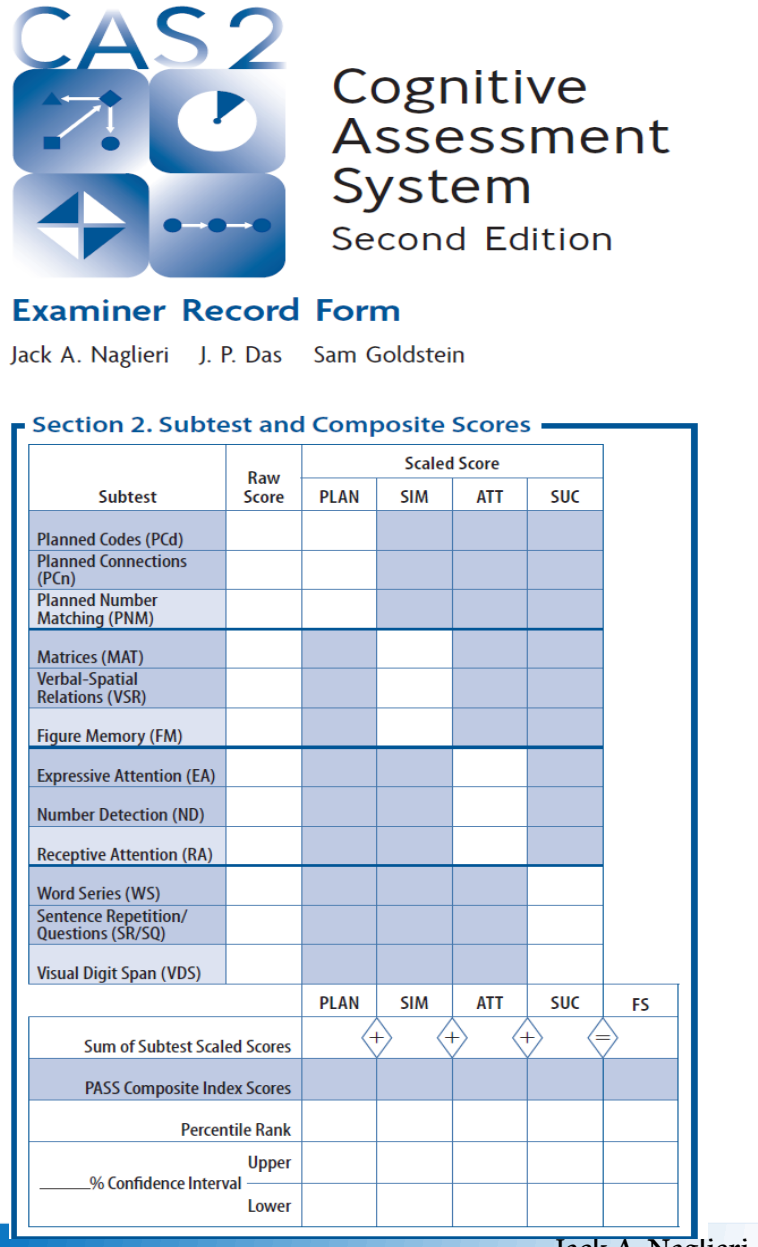
Simultaneous Raw Score

Simultaneous Subtests

Matrices

Verbal Spatial Relations

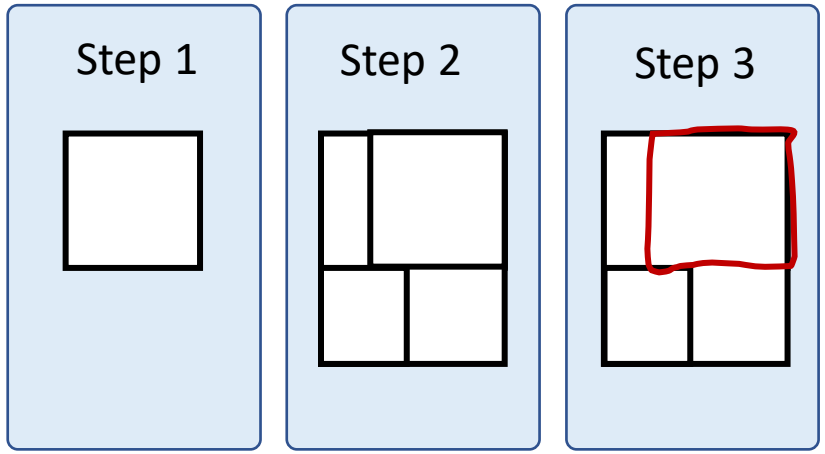
Figure Memory



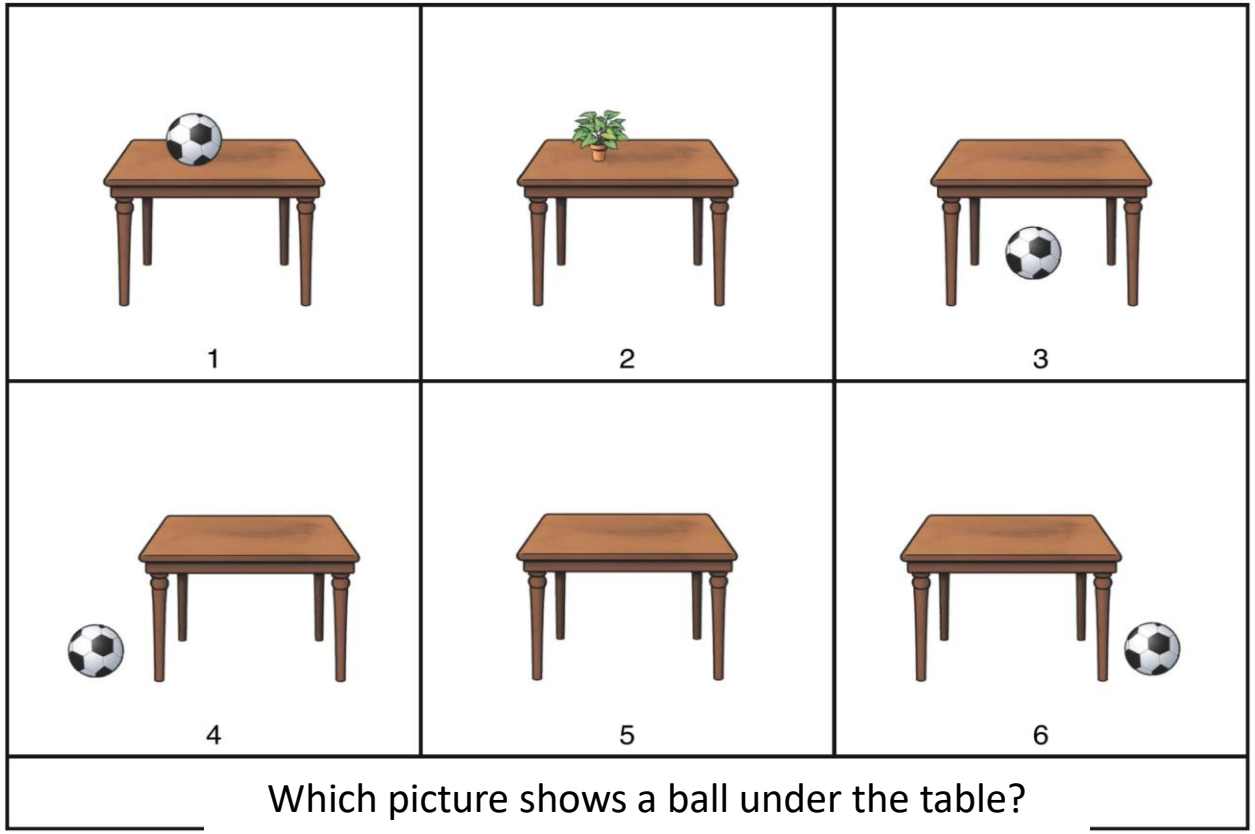
Jack A. Naglieri

Figure Memory

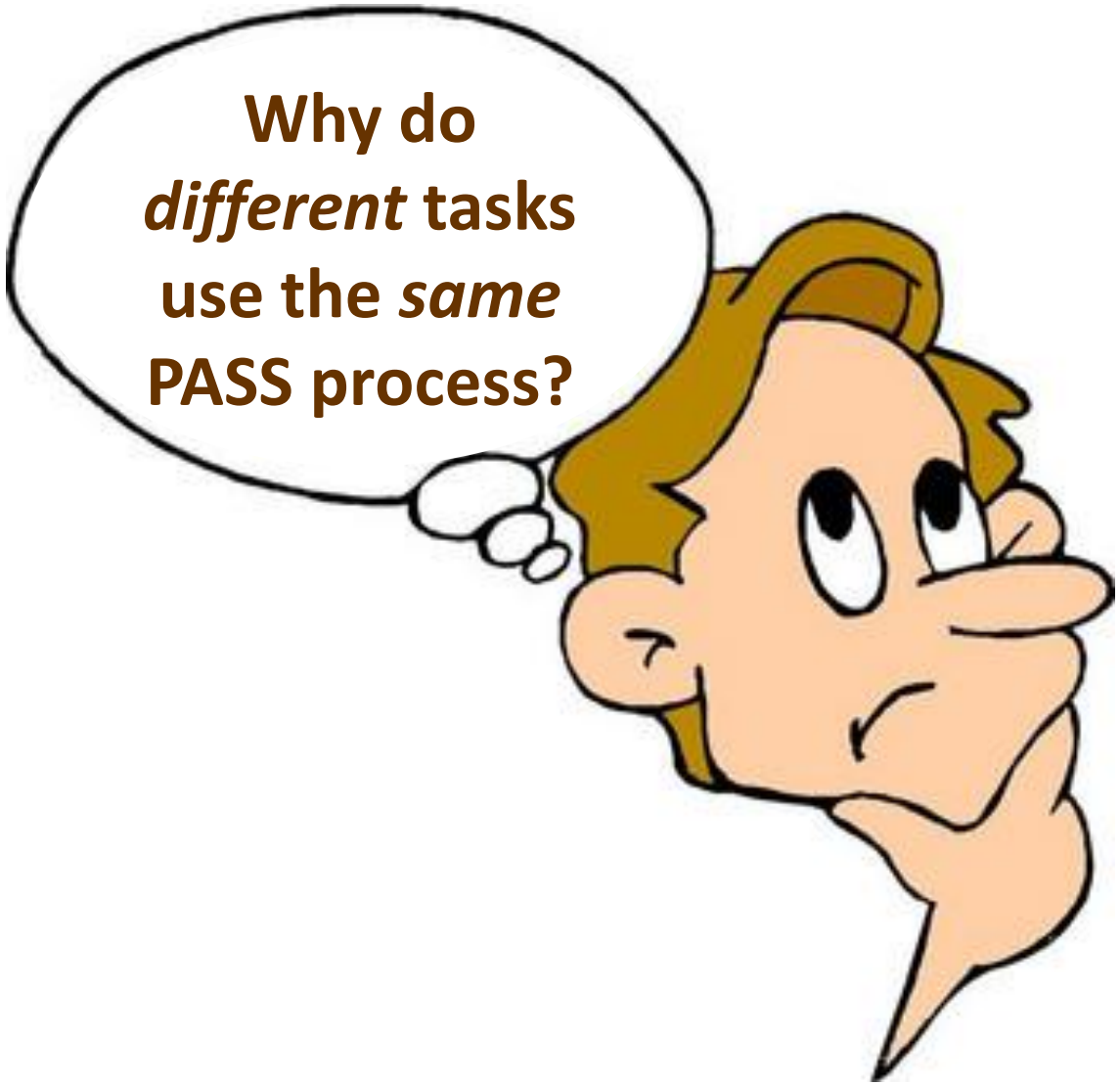
- These two subtests measure Simultaneous processing in different ways



Verbal Spatial Relations



And Consider this…



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

PASS Theory Based on Brain Function – Successive Processing

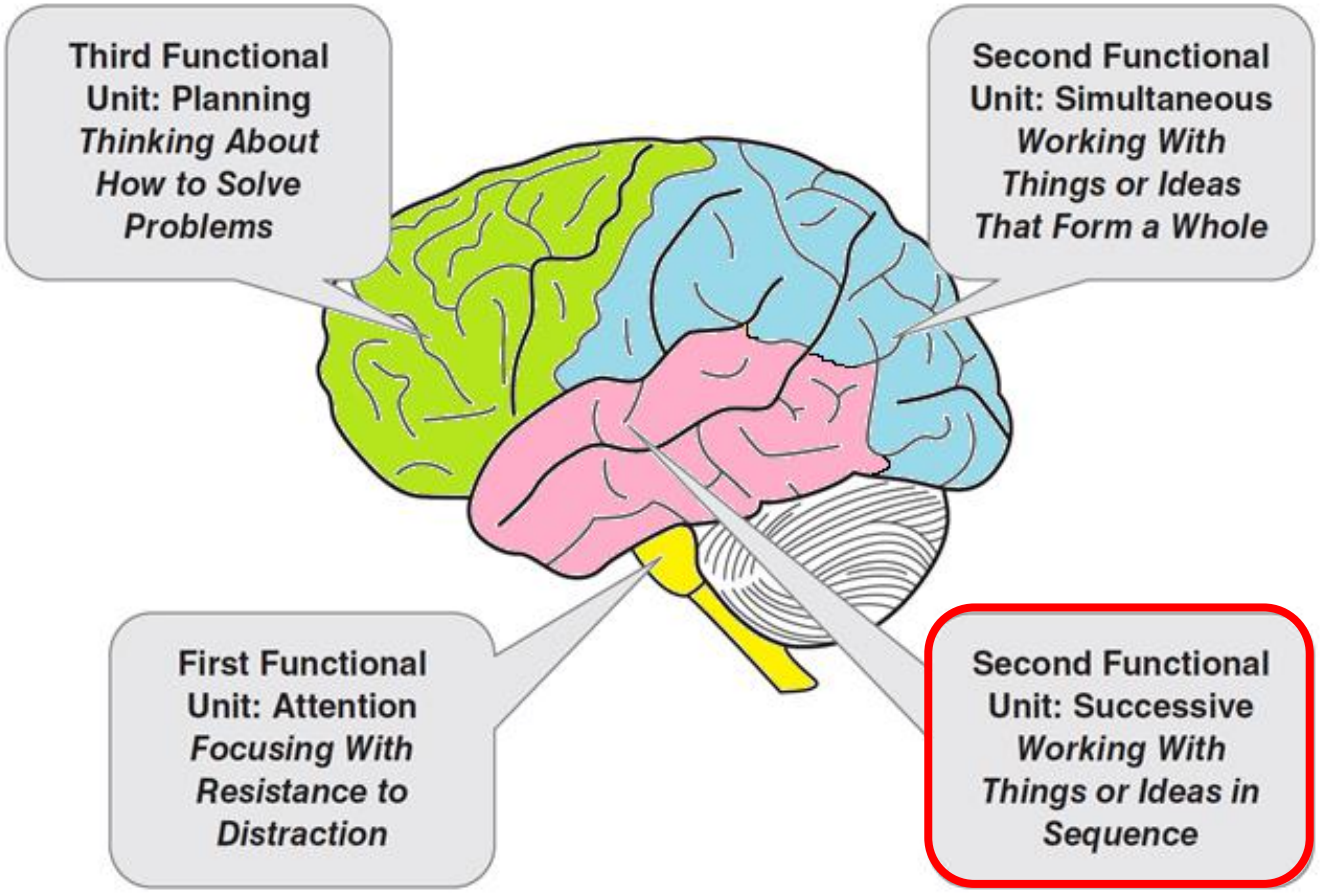


Figure 1.2 Three Functional Units and Associated Brain Structures

From: *Essentials of CAS2 Assessment*. Naglieri & Otero, 2017

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

Successive Processing Behaviors

Directions for Items 31–40. These questions ask how well the child or adolescent remembers things in order. The questions ask about working with numbers, words, or ideas in a series. The questions also ask about doing things in a certain order. Please rate how well the child or adolescent works with things in a specific order.

During the past month, how often did the child or adolescent . . .	Never	Rarely	Sometimes	Frequently	Always
31. recall a phone number after hearing it?	0	1	2	3	4
32. remember a list of words?	0	1	2	3	4
33. sound out hard words?	0	1	2	3	4
34. correctly repeat long, new words?	0	1	2	3	4
35. remember how to spell long words after seeing them once?	0	1	2	3	4
36. imitate a long sequence of sounds?	0	1	2	3	4
37. recall a summary of ideas word for word?	0	1	2	3	4
38. repeat long words easily?	0	1	2	3	4
39. repeat sentences easily, even if unsure of their meaning?	0	1	2	3	4
40. follow three to four directions given in order?	0	1	2	3	4

___ + ___ + ___ + ___ + ___ = ☐

Successive Raw Score

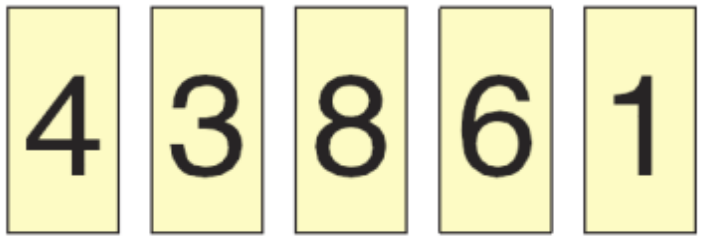
Successive Subtests

Word Series

Sentence Repetition or

Recall of Numbers in Order

Successive Processing



CAS 2

Cognitive Assessment System

Second Edition

Examiner Record Form

Jack A. Naglieri J. P. Das Sam Goldstein

Section 2. Subtest and Composite Scores

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)					

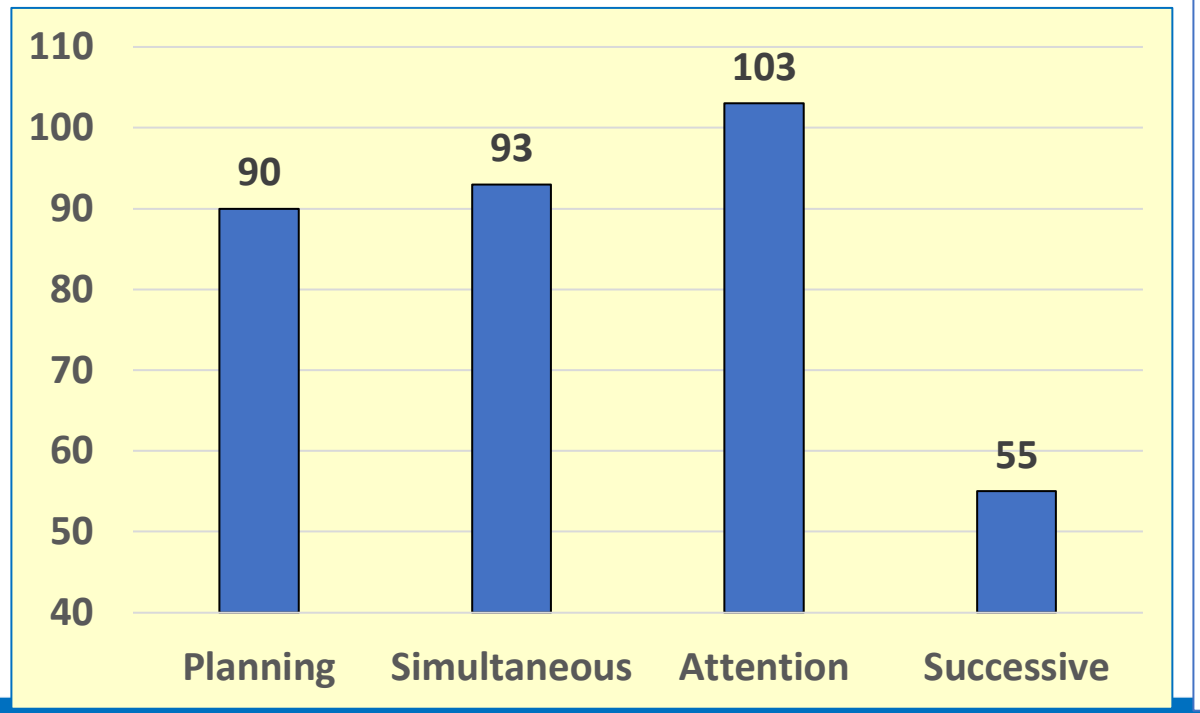
	PLAN	SIM	ATT	SUC	FS
Sum of Subtest Scaled Scores		+	+	+	=
PASS Composite Index Scores					
Percentile Rank					
_____% Confidence Interval Upper					
_____% Confidence Interval Lower					

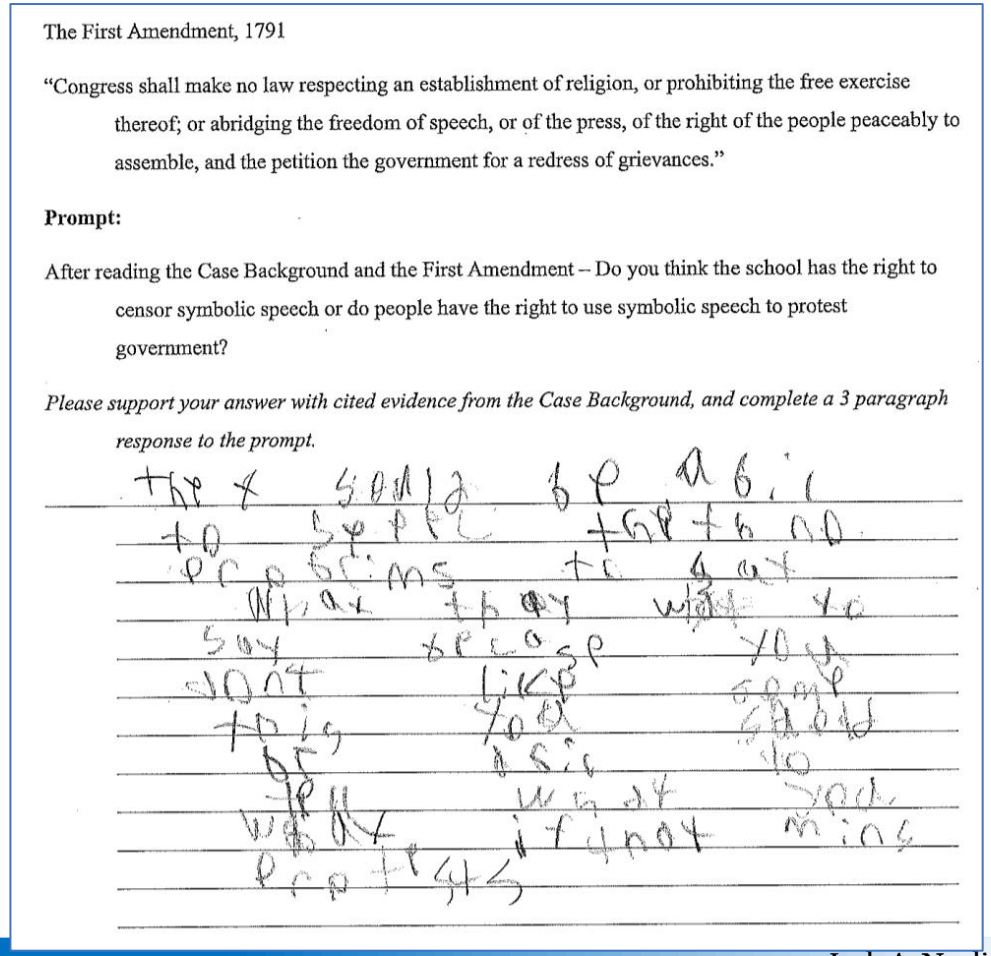
Successive and Syntax

- 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?***

PASS and Handwriting

- Acquisition of handwriting demands Successive processing




The First Amendment, 1791

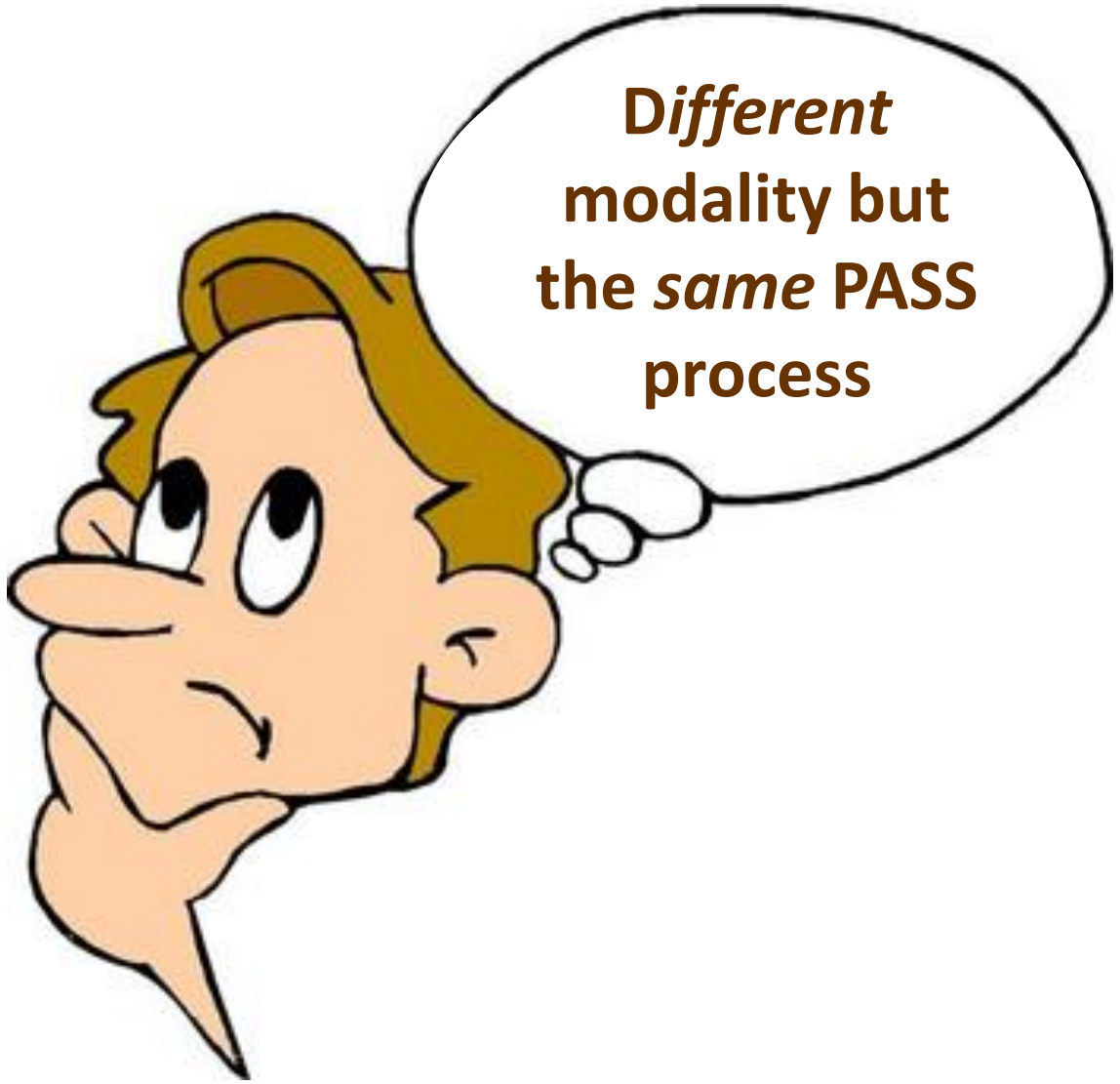
"Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press, of the right of the people peaceably to assemble, and the petition the government for a redress of grievances."

Prompt:

After reading the Case Background and the First Amendment – Do you think the school has the right to censor symbolic speech or do people have the right to use symbolic speech to protest government?

Please support your answer with cited evidence from the Case Background, and complete a 3 paragraph response to the prompt.

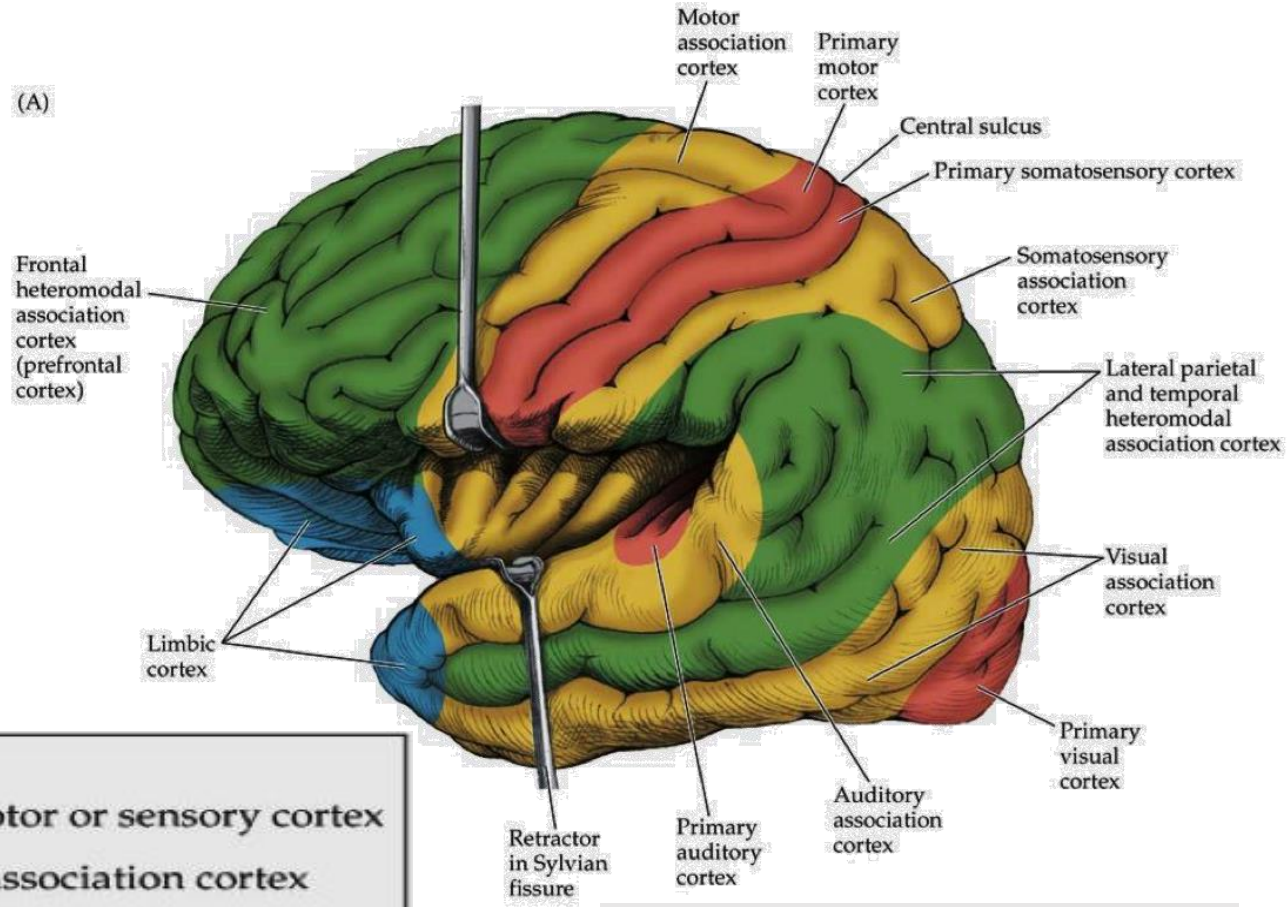
And Again…



- Even though the Successive processing subtests were different in content (single words heard, a sentence heard, and numbers seen) they required **Successive** processing!

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)



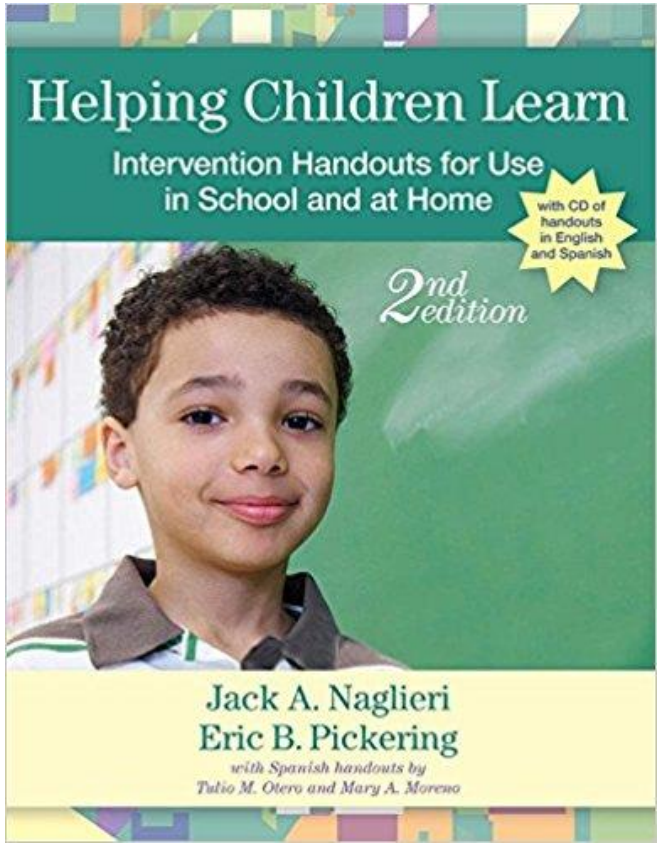
https://goo.gl/images/cyphg7

Using Good EF to Overcome a Successive Processing Disorder

Ben's Problem with Successive Processing

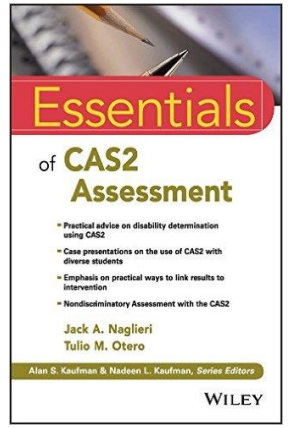
Ben was an energetic but frustrated third-grade student who liked his teachers, was popular with his peers, and fit in well socially at school. However, Ben said he did not like school at all, particularly schoolwork. Ben was good at turning in all of his work on time, and he worked hard, but he earned poor grades. He appeared to be getting more and more frustrated at school.

In general, Ben struggled to perform well because he had a lot of trouble following directions that were not written down, his writing often did not make sense, and he did not appear to comprehend what he read. Ben's teachers noticed that when directions for assignments and projects were given orally in class, he often only finished part of the task. Ben's teacher described an assignment in which students had to collect insects, label them, organize them into a collection, and then give a brief presentation about each insect. Unlike any other student, Ben chose to make the labels for the insects first and then go look for the insects. He found only a few of the insects he had made labels for, and when he put them in the collection, they were not in the order that had been specified. He also had trouble with the spelling of the scientific names of the insects and made many errors in the sequence of letters in the words.



Ben's SLD: Discrepancy Consistency Method

- **Discrepancy** between high and low processing scores
- **Discrepancy** between high processing and low achievement
- **Consistency** between low processing and low achievement



Significant Discrepancy

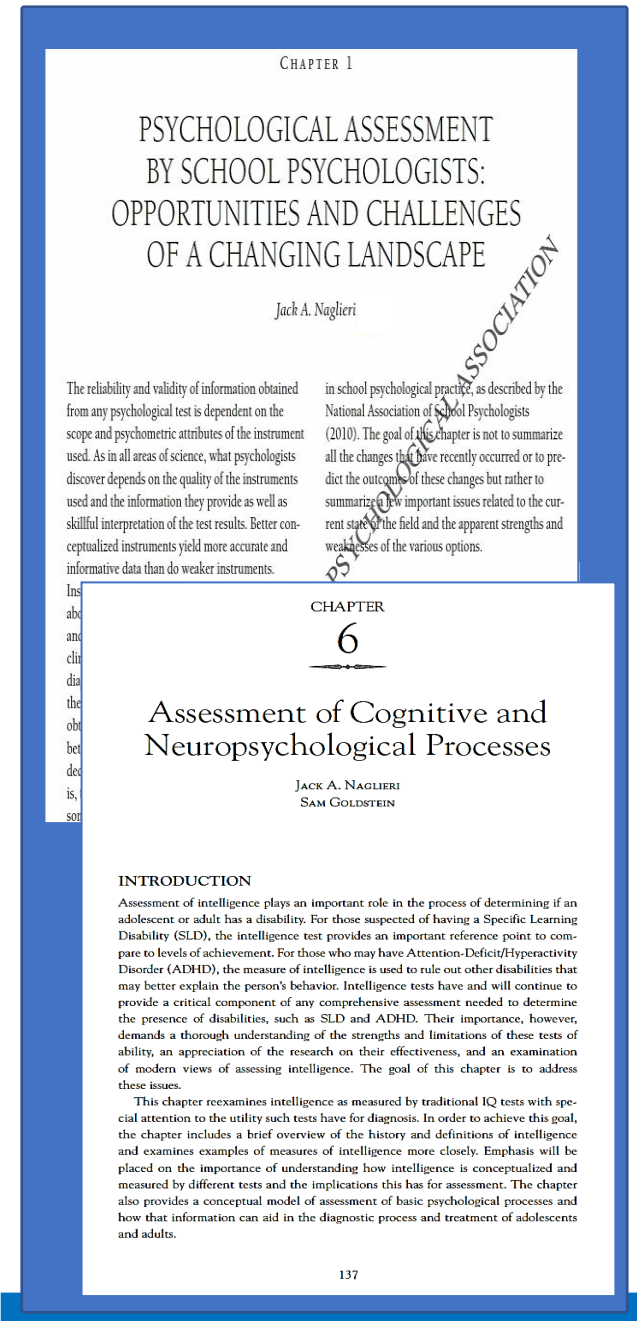
HIGH SCORES
Simultaneous
Planning
Attention

Significant Discrepancy

LOW SCORES
Math Calculation, Math Reasoning & Reading Decoding

LOW SCORES
CAS2: Successive

Consistent Scores



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 information they provide as well as skillful interpretation of the test results. Better conceptualized instruments yield more accurate and informative data than do weaker instruments.

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 outcomes of these changes but rather to summarize a few important issues related to the current state of the field and the apparent strengths and weaknesses of the various options.

CHAPTER 6

Assessment of Cognitive and Neuropsychological Processes

JACK A. NAGLIERI
SAM GOLDSTEIN

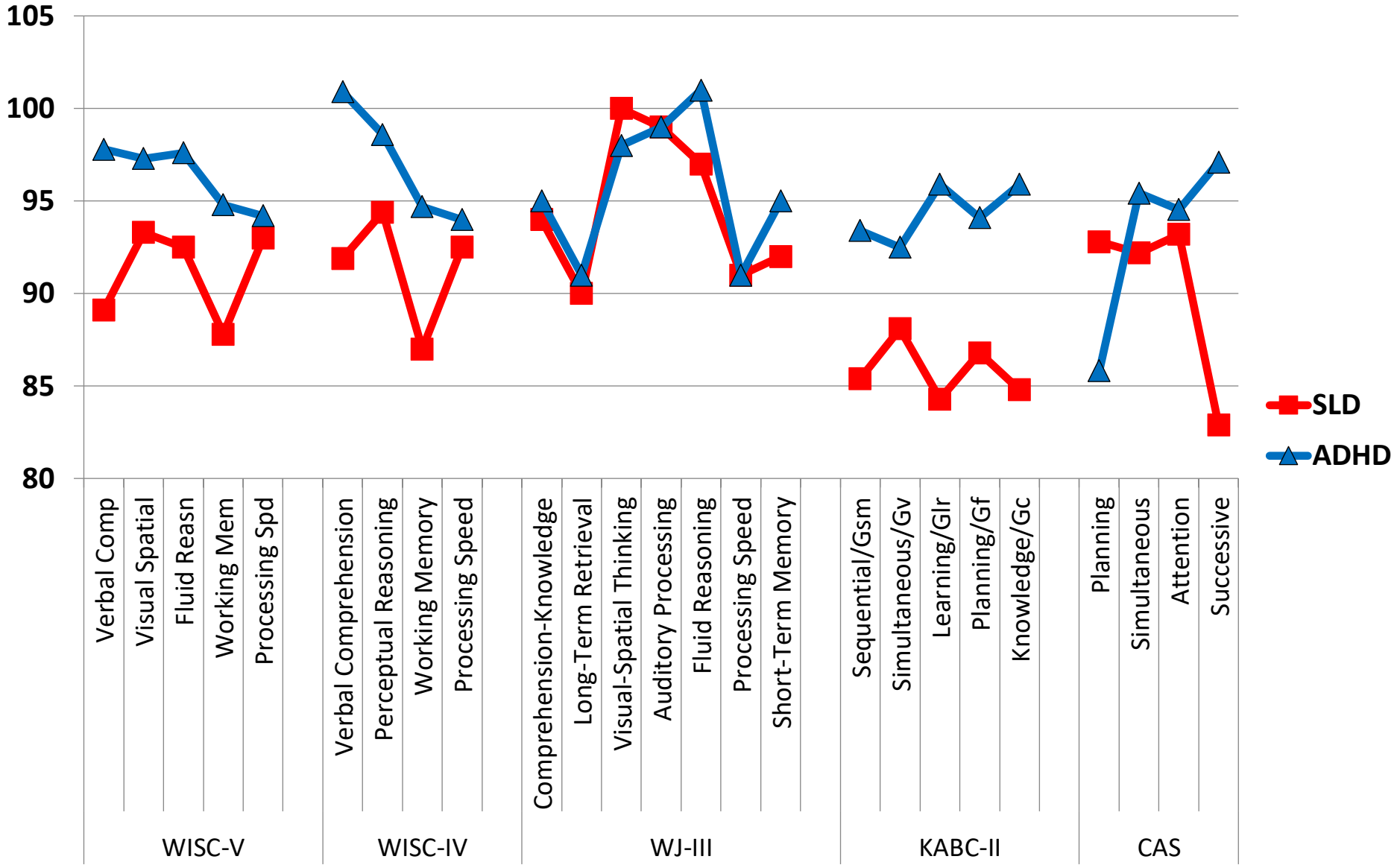
INTRODUCTION

Assessment of intelligence plays an important role in the process of determining if an adolescent or adult has a disability. For those suspected of having a Specific Learning Disability (SLD), the intelligence test provides an important reference point to compare to levels of achievement. For those who may have Attention-Deficit/Hyperactivity Disorder (ADHD), the measure of intelligence is used to rule out other disabilities that may better explain the person's behavior. Intelligence tests have and will continue to provide a critical component of any comprehensive assessment needed to determine the presence of disabilities, such as SLD and ADHD. Their importance, however, demands a thorough understanding of the strengths and limitations of these tests of ability, an appreciation of the research on their effectiveness, and an examination of modern views of assessing intelligence. The goal of this chapter is to address these issues.

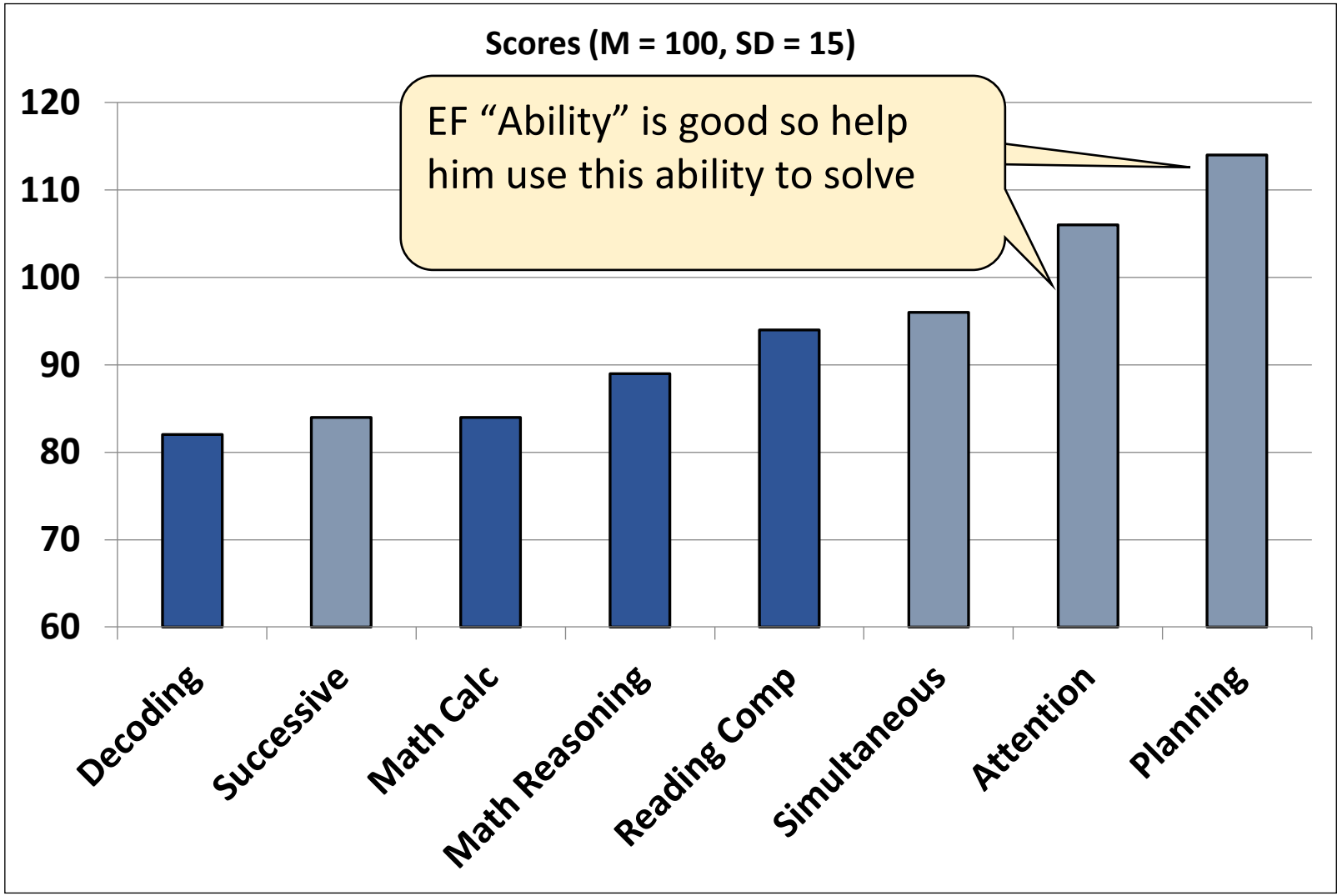
This chapter reexamines intelligence as measured by traditional IQ tests with special attention to the utility such tests have for diagnosis. In order to achieve this goal, the chapter includes a brief overview of the history and definitions of intelligence and examines examples of measures of intelligence more closely. Emphasis will be placed on the importance of understanding how intelligence is conceptualized and measured by different tests and the implications this has for assessment. The chapter also provides a conceptual model of assessment of basic psychological processes and how that information can aid in the diagnostic process and treatment of adolescents and adults.

137

Profiles for Dyslexia & ADHD



Ben's Problem with Successive processing Ability

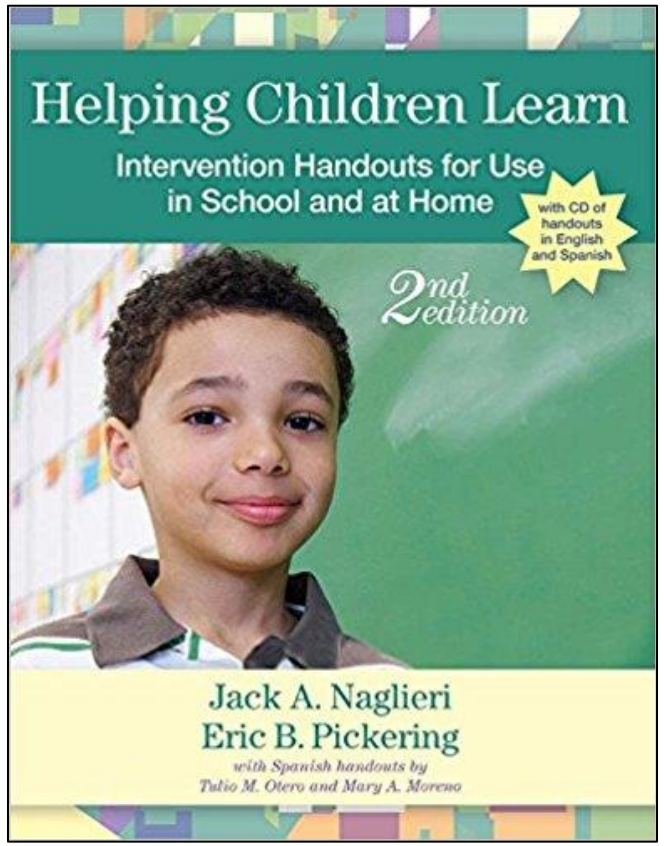


Ben's Problem with Successive Processing

- Ben has difficulty whenever ANY task requires sequencing
  - Academic or ability tests
  - Visual or auditory tests
  - Math or spelling or reading
  - Tasks that require memory of seque
- How do we help him learn better?

Teach Children about their Abilities

- Helping Children Learn Intervention Handouts for Use in School and at Home, *Second Edition (*Naglieri, & Pickering, 2011)
- Spanish handouts by Tulio Otero & Mary Moreno



Ben's Problem with Successive Ability

Teach him to use his strength in EF (Planning)

How Can You Be Smarter?

You can be smarter if you PLAN before doing things. Sometimes people say, "Look before you leap," "Plan your work and work your plan," or "Stop and think." These sayings are about using the ability to plan. When you stop and think about *how* to study, you are using your ability to plan.

You will be able to do more if you remember to use a plan. An easy way to remember to use a plan is to look at the picture "Think smart and use a plan!" (Figure 1). You should always use a plan for reading, vocabulary, spelling, writing, math problem solving, and science.

Do you have a favorite plan for learning spelling words? Do you use flashcards or go on the Internet to learn? Do you ask the teacher or another student for help? You can learn more by using a plan for studying that works best for you.

Think smart and use a plan!

It is smart to have a plan for doing all schoolwork. When you read, you should have a plan. One plan is to look at the questions you have to answer about the story first. Then read the story to find the answers. Another plan is to make a picture of what you read so that you can see all the parts of the story. When you write you should also have a plan. Students who are good at writing plan and organize their thoughts first. Then they think about what they are doing as they write. Using a plan is a good way to be smarter about your work!

How to Be Smart: Planning

When we say people are smart, we usually mean that they know a lot of information. But being smart also means that someone has a lot of ability to learn new things. Being smart at learning new things includes knowing and using your *thinking abilities*. There are ways you can use your abilities *better* when you are learning.

What Does Being Smart Mean?

One ability that is very important is called *Planning*. The ability to *plan* helps you figure out *how to do things*. When you don't know how to solve a problem, using Planning ability will help you figure out how to do it. This ability also helps you control what you think and do. It helps you to stop before doing something you shouldn't do. Planning ability is what helps you wait until the time is right to act. It also helps you make good decisions about what to say and what to do.

Ben's Problem with Successive Ability

Teach him to recognize sequences

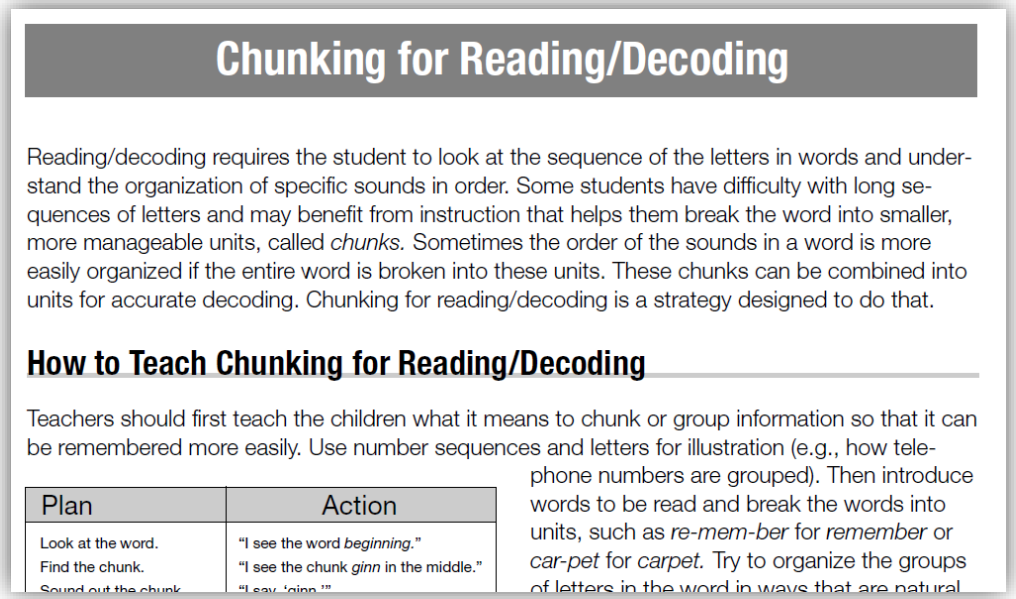
How to Teach Successive Processing Ability

The first step in teaching children about their own abilities is to explain what Successive processing ability is. In Figure 1 (which is included in the PASS poster on the CD), we provide a fast and

1. Teach children that most information is presented in a specific sequence so that it makes sense.
2. Encourage children by asking, "Can you see the sequence of events here?" or "Did you see how all of this is organized into a sequence that must be followed?"
3. Remind the students to think of how information is sequenced in different content areas, such as reading, spelling, and arithmetic, as well as in sports, playing an instrument, driving a car, and so forth.
4. Teach children that the sequence of information is critical for success.
5. Remind students that seeing the sequence requires careful examination of the serial relationships among the parts.

Solutions for Ben- Use EF

Teach him to use strategies



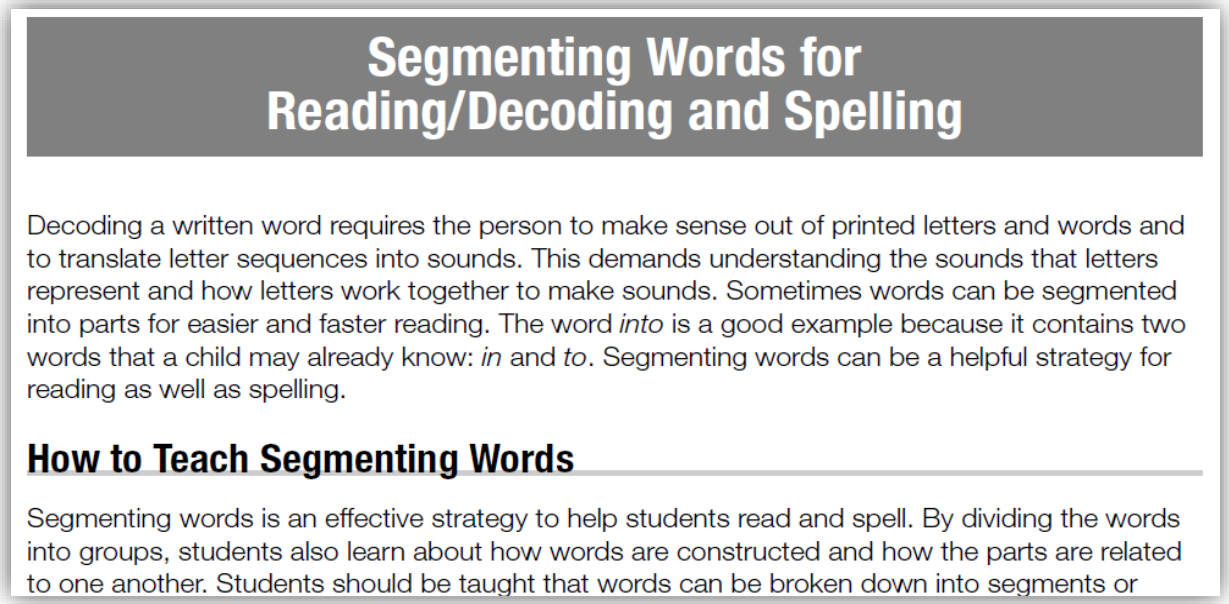
Chunking for Reading/Decoding

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 units for accurate decoding. Chunking for reading/decoding is a strategy designed to do that.

How to Teach Chunking for Reading/Decoding

Teachers should first teach the children what it means to chunk or group information so that it can be remembered more easily. Use number sequences and letters for illustration (e.g., how telephone numbers are grouped). Then introduce words to be read and break the words into units, such as *re-mem-ber* for *remember* or *car-pet* for *carpet.* Try to organize the groups of letters in the word in ways that are natural

Plan	Action
Look at the word. Find the chunk. Sound out the chunk	"I see the word *beginning.*" "I see the chunk *ginn* in the middle." "I say 'ginn.'"



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 and how letters work together to make sounds. Sometimes words can be segmented into parts for easier and faster reading. The word *into* is a good example because it contains two words that a child may already know: *in* and *to*. Segmenting words can be a helpful strategy for reading as well as spelling.

How to Teach Segmenting Words

Segmenting words is an effective strategy to help students read and spell. By dividing the words into groups, students also learn about how words are constructed and how the parts are related to one another. Students should be taught that words can be broken down into segments or

PASS scores – English and Spanish

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

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

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Columbia College, Elgin Campus
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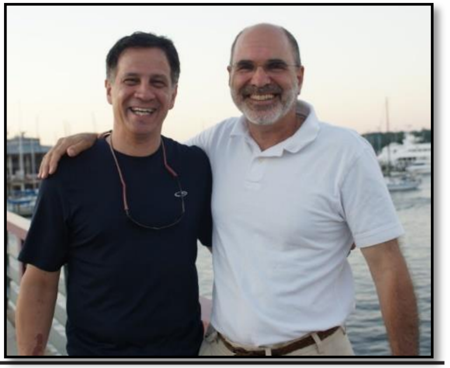
George Mason University
Holly Matto
Virginia Commonwealth University



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 use
ences were noted between the
Simultaneous and Successive
were similar. Specific subtests
were found to contribute to t
versions of the CAS. Compar
ness on both versions of the
sistently despite the language

Keywords: bilingual assessment, i
tem, non-biased assessment

APPLIED NEUROPSYCHOLOGY: CHILD, *0*: 1–9, 2012

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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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,
...S) scores as well as PASS processing scale
...rences were found in FS scores or in any of
... English ($M = 86.4$, $SD = 8.73$) and Spanish
...(uncorrected) and .99 (corrected for range
...s in Successive processing regardless of the
... PASS cognitive profiles were similar on
...cales. These findings suggest that students
...and that the CAS may be a useful measure
...n with underdeveloped English-language

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

Support for ‘g’

Journal Information
Journal TOC

PsycARTICLES: Journal Article

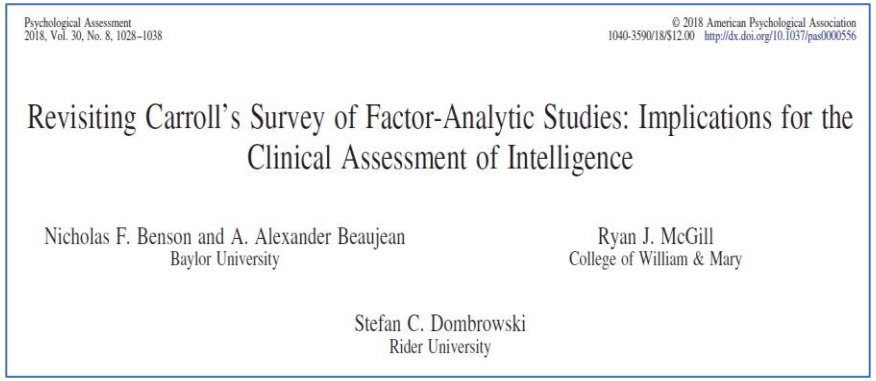
Structural validity of the Wechsler Intelligence Scale for Children–Fifth Edition: Confirmatory factor analyses with the 16 primary and secondary subtests.

© 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).



Psychological Assessment
2018, Vol. 30, No. 8, 1028–1038

1040-3590/18/$12.00 http://dx.doi.org/10.1037/pas0000556

Revisiting Carroll’s Survey of Factor-Analytic Studies: Implications for the Clinical Assessment of Intelligence

Nicholas F. Benson and A. Alexander Beaujean
Baylor University

Ryan J. McGill
College of William & Mary

Stefan C. Dombrowski
Rider University

- **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.**

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

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Support for PASS Scales

School Psychology Quarterly
2011, Vol. 26, No. 4, 305–317

1045-3830/11/$12.00 DOI: 10.1037/a0025973

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

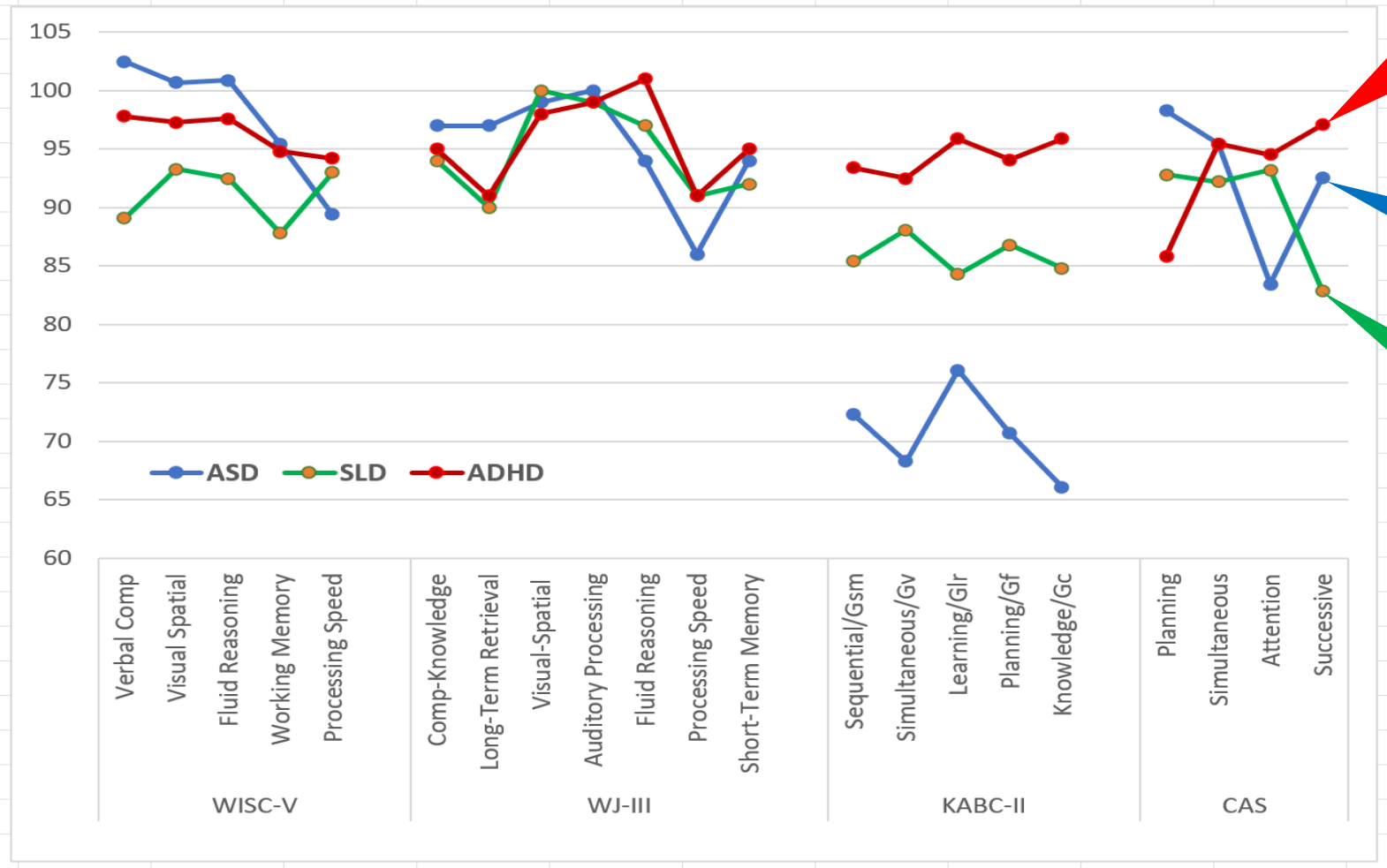
- "…compared to the WISC–IV, WAIS–IV, SB–5, RIAS, WASI, and WRIT, the CAS subtests had less variance apportioned to the higher-order general factor (g) and *greater proportions of variance apportioned to first-order (PASS…) factors*.
- This is consistent with the subtest selection and construction in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

Key Questions about PASS Validity

- Given that PASS scales CAN be interpreted …
  - do the 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?

Patterns of Strengths & Weaknesses

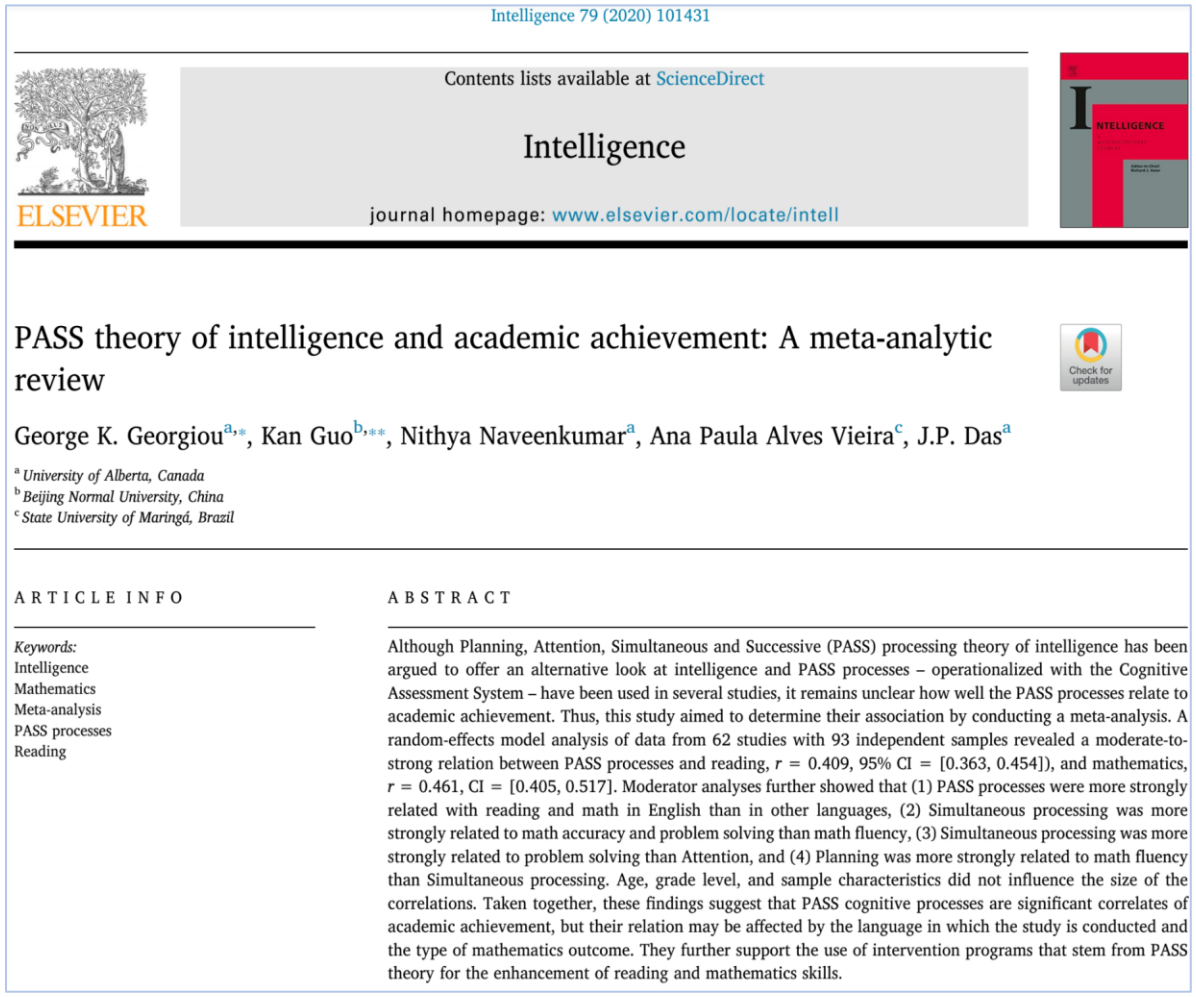
These profiles across tests is very revealing - PASS works



ADHD (Low Planning)

ASD – Low Attention

Dyslexia – Low Successive



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

George K. Georgiou[a,*], Kan Guo[b,**], Nithya Naveenkumar[a], Ana Paula Alves Vieira[c], J.P. Das[a]

[a] University of Alberta, Canada
[b] Beijing Normal University, China
[c] State University of Maringá, Brazil

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ABSTRACT

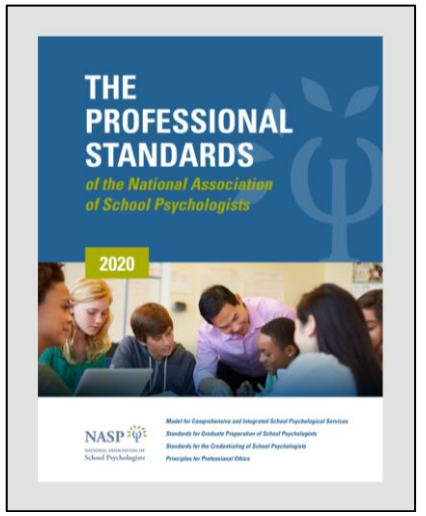
Although Planning, Attention, Simultaneous and Successive (PASS) processing theory of intelligence has been argued to offer an alternative look at intelligence and PASS processes – operationalized with the Cognitive Assessment System – have been used in several studies, it remains unclear how well the 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.*

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…"

NASP Professional Standards 2020



NASP 2020 Professional Standards

GUIDING PRINCIPLE I.3 FAIRNESS, EQUITY, AND JUSTICE

In their words and actions, school psychologists promote fairness and social justice. They use their expertise to cultivate school climates that are safe, welcoming, and equitable to all persons regardless of actual or perceived characteristics, including race, ethnicity, color, religion, ancestry, national origin, immigration status, socioeconomic status, primary language, gender, sexual orientation, gender identity, gender expression, disability, or any other distinguishing characteristics.

Standard I.3.2 Correcting Discriminatory Practices

School psychologists strive to ensure that all children and youth have equal opportunity to participate in and benefit from school programs and that all students and families have access to and can benefit from school psychological services. They work to correct school practices that are unjustly discriminatory or that deny students or others their legal rights. School psychologists take steps to foster a school climate that is supportive, inclusive, safe, accepting, and respectful toward all persons, particularly those who have experienced marginalization in educational settings.

School psychologists function as change agents, using their skills in communication, collaboration, and consultation to advocate for necessary change at the individual student, classroom, building, district, state, and national levels.

WE CAN DO BETTER

We Must do Better

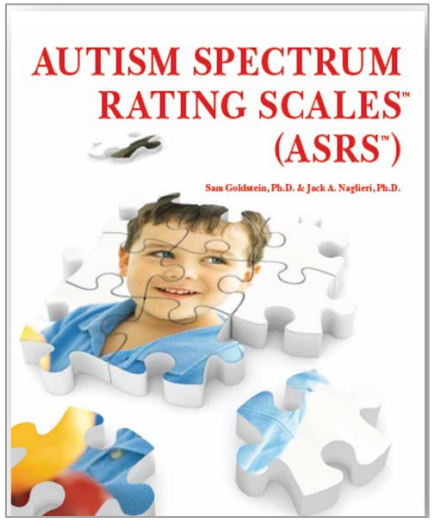
Your Thoughts

- Let’s take this time to clarify any questions you may have before we examine the Validity and Practical utility of the PASS Theory of intelligence.

How does Autism Assessment Fit in?

- Do people with ASD have a cognitive component?
- Lets start by looking at ASD

Assessment of Individuals with Autism Spectrum Disorders using the ASRS



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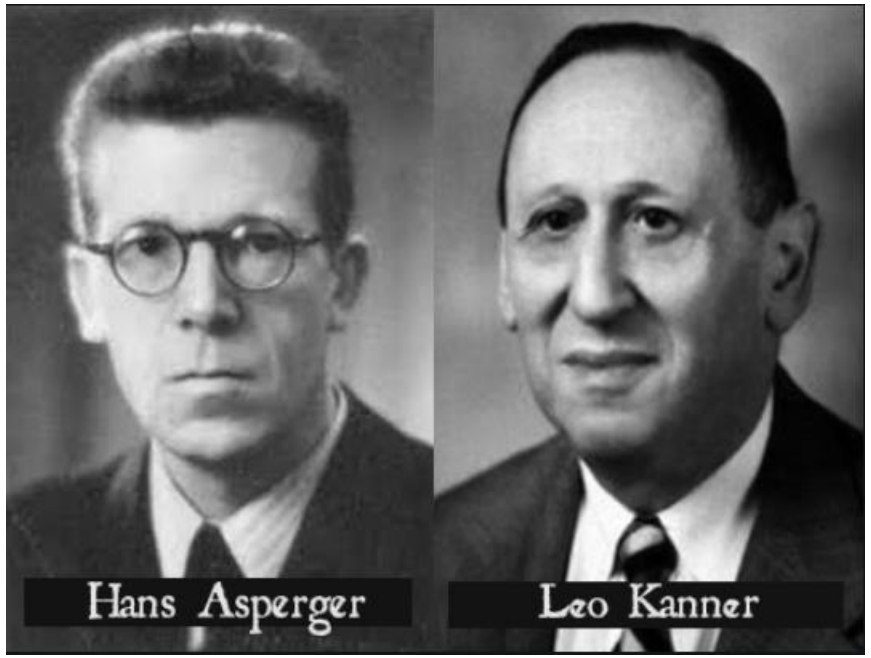
www.jacknaglieri.com

NaglieriGIftedTests.com

Original Description (1943)

- Inability to relate to others
- Disinterest in parents and people
- Language difficulties
- fascination with inanimate objects
- Resistance to change in routine
- Purposeless repetitive movements
  - A wide range of cognitive skills
  - Where they possess an innate inability for emotional contact



ASD

- ASD is diagnosed based on observable behaviors
- Rating scales such as ASRS provide a description of the person.

➢ We had a few goals when we developed the ASRS

DSM-5 Autism Diagnostic Criteria

A. Persistent deficits in social communication and social interaction across multiple contexts,

B. Restricted, repetitive patterns of behavior, interests, or activities,

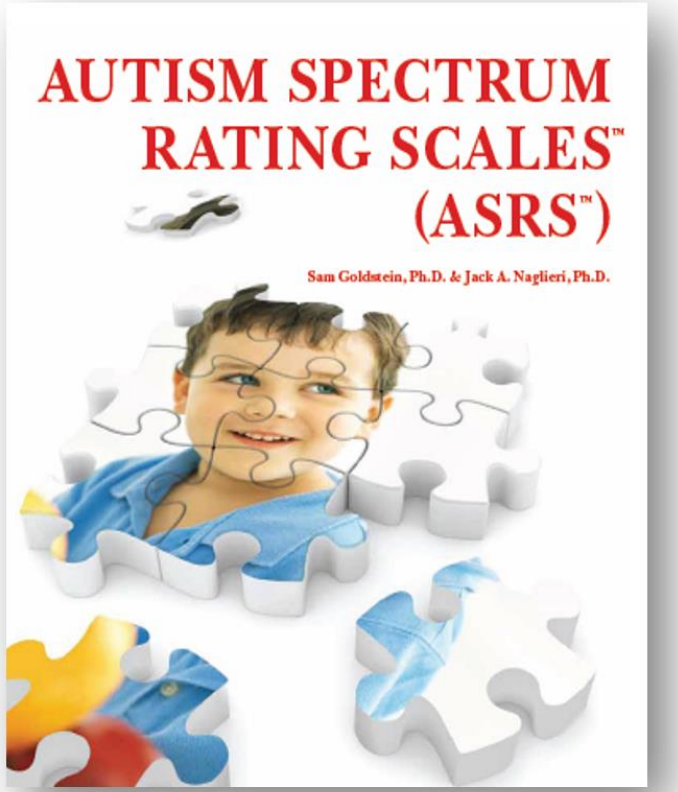
C. Symptoms must be present in the early developmental period

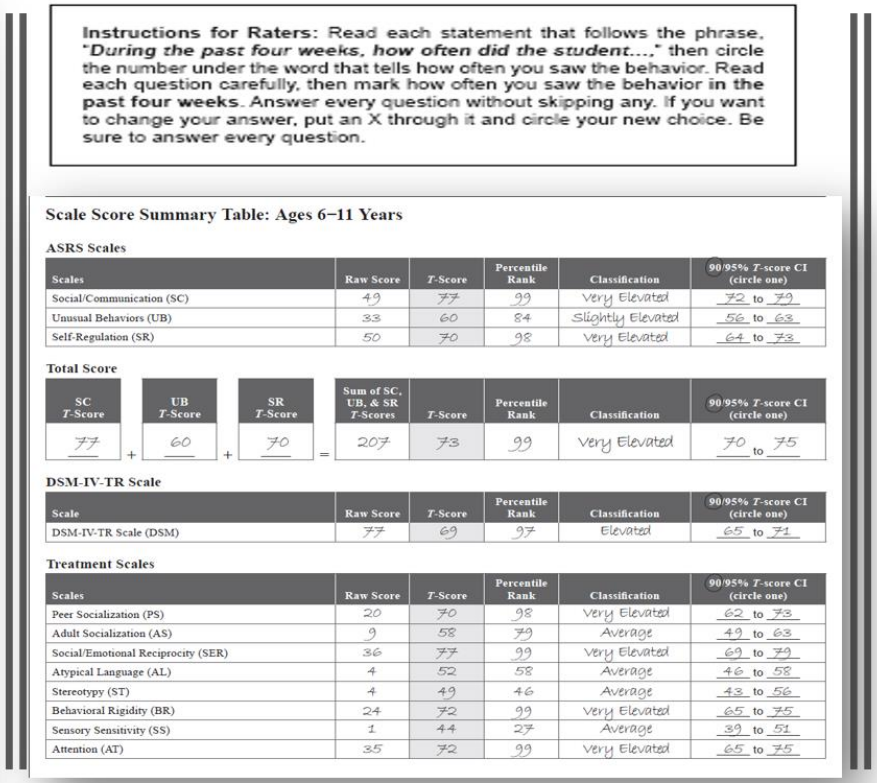
D. Symptoms cause clinically significant impairment in social, occupational, or other

E. These disturbances are not better explained by intellectual disability

Presentation Outline

- Introduction to ASD
- **Building the ASRS**
- Importance of a national standardization sample
- Autism Spectrum Rating Scale Validity
- Autism Spectrum Rating Scale Short Form
  - Structure, Reliability, & Validity
- ASRS Interpretation with other measures
- Conclusions





Instructions for Raters: Read each statement that follows the phrase, "*During the past four weeks, how often did the student...*," then circle the number under the word that tells how often you saw the behavior. Read each question carefully, then mark how often you saw the behavior in the past four weeks. 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.

Scale Score Summary Table: Ages 6–11 Years

ASRS Scales

Scales	Raw Score	*T*-Score	Percentile Rank	Classification	90/95% *T*-score CI (circle one)
Social/Communication (SC)	49	77	99	Very Elevated	72 to 79
Unusual Behaviors (UB)	33	60	84	Slightly Elevated	56 to 63
Self-Regulation (SR)	50	70	98	Very Elevated	64 to 73

Total Score

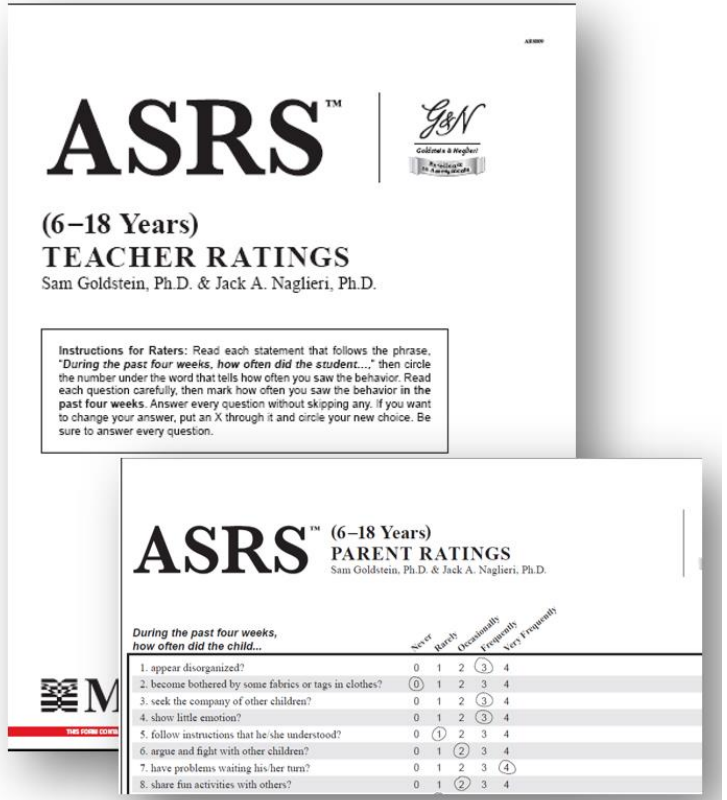
SC *T*-Score		UB *T*-Score		SR *T*-Score		Sum of SC, UB, & SR *T*-Scores	*T*-Score	Percentile Rank	Classification	90/95% *T*-score CI (circle one)
77	+	60	+	70	=	207	73	99	Very Elevated	70 to 75

DSM-IV-TR Scale

Scale	Raw Score	*T*-Score	Percentile Rank	Classification	90/95% *T*-score CI (circle one)
DSM-IV-TR Scale (DSM)	77	69	97	Elevated	65 to 71

Treatment Scales

Scales	Raw Score	*T*-Score	Percentile Rank	Classification	90/95% *T*-score CI (circle one)
Peer Socialization (PS)	20	70	98	Very Elevated	62 to 73
Adult Socialization (AS)	9	58	79	Average	49 to 63
Social/Emotional Reciprocity (SER)	36	77	99	Very Elevated	69 to 79
Atypical Language (AL)	4	52	58	Average	46 to 58
Stereotypy (ST)	4	49	46	Average	43 to 56
Behavioral Rigidity (BR)	24	72	99	Very Elevated	65 to 75
Sensory Sensitivity (SS)	1	44	27	Average	39 to 51
Attention (AT)	35	72	99	Very Elevated	65 to 75



ASRS™ (6–18 Years) TEACHER RATINGS
Sam Goldstein, Ph.D. & Jack A. Naglieri, Ph.D.

Instructions for Raters: Read each statement that follows the phrase, "*During the past four weeks, how often did the student...*," then circle the number under the word that tells how often you saw the behavior. Read each question carefully, then mark how often you saw the behavior in the past four weeks. 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.

ASRS™ (6–18 Years) PARENT RATINGS
Sam Goldstein, Ph.D. & Jack A. Naglieri, Ph.D.

During the past four weeks, how often did the child...	Never	Rarely	Occasionally	Frequently	Very Frequently
1. appear disorganized?	0	1	2	(3)	4
2. become bothered by some fabrics or tags in clothes?	(0)	1	2	3	4
3. seek the company of other children?	0	1	2	(3)	4
4. show little emotion?	0	1	2	(3)	4
5. follow instructions that he/she understood?	0	(1)	2	3	4
6. argue and fight with other children?	0	1	(2)	3	4
7. have problems waiting his/her turn?	0	1	2	3	(4)
8. share fun activities with others?	0	1	(2)	3	4

Behavioral Evaluation of ASD

Parents and teacher Rating Scales for ages 2 – 18 years

Goal #1

- Develop an empirically supported multi-factor scale that reflects the Autism spectrum
- Start by developing a large set of items associated with Autism and select those that work psychometrically
- Determine the factor structure of the ASRS

Factor Analysis for 2-5 Years

- A two-factor solution was best for parent and teacher raters
  - **Factor I:** included primarily items related to both socialization and communication (e.g., keep a conversation going, understand how someone else felt) - **Social/Communication**
  - **Factor II:** included items related to behavioral rigidity (e.g., insist on doing things the same way each time), stereotypical behaviors (e.g., flap his/her hands when excited), and overreactions to sensory stimulation (e.g., overreact to common smells)- **Unusual Behaviors**

Factor Analysis for 6-18 Years

- A three-factor solution was best for both parent and teachers versions of the ASRS
  - **Factor I:** included primarily items related to both socialization and communication -**Social/Communication**
  - **Factor II:** included items related to behavioral rigidity, stereotypical behaviors and overreactions to sensory -**Unusual Behaviors**
  - **Factor III**: included items related to attention problems (e.g., become distracted), impulsivity (e.g., have problems waiting his/her turn), and compliance (e.g., get into trouble with adults, argue and fight with other children) -**Self-Regulation**.

Goal #2

- Based on the factor analysis of the ASRS items, we suggested that ASD is best described as having two groups of behaviors for children ages 2-5 and three for those aged 6 to 18 years of age.
- Interpretation is at the Total, Scale and Item levels
  - Ages 2-5 Years
    - Peer Socialization
    - Adult Socialization
    - Social/Emotional Reciprocity
    - Atypical Language
    - Stereotypy
    - Behavioral Rigidity
    - Sensory Sensitivity
    - Attention / Self Regulation
  - 6- 18 Years
    - Peer Socialization
    - Adult Socialization
    - Social/Emotional Reciprocity
    - Atypical Language
    - Stereotypy
    - Behavioral Rigidity
    - Sensory Sensitivity
    - Attention

ASRS Forms

- Raw scores are converted to T-scores

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ASRS Interpretation – Item Level

Table X.1. Minimum Elevated Item Scores and Treatment Targets: ASRS (2–5 Years)

Item	Minimum Elevated Item Score		Treatment Target	Treatment Scale
	Parent	Teacher/ Childcare Provider		
1. smile appropriately?	2	2	Increase the ability to smile appropriately in social and related situations.	Social/Emotional Reciprocity
2. become bothered by some fabrics or tags in clothes?	3	2	Reduce tactile sensitivity to clothing.	Sensory Sensitivity
3. understand how someone else felt?	3	4	Improve the ability to understand the feelings of others.	Social/Emotional Reciprocity
4. play with others?	2	2	Increase the amount of play with others.	Peer Socialization
			Increase the ability to	

ASRS Pre-Post Differences

Treatment Goals

This section provides treatment goals based on elevated item scores (see *ASRS Items by Scale and Raw Scale Scores* for a full list of elevated items). See the *ASRS Technical Manual* for more information on elevated items and their use in formulating treatment goals.

Elevated Treatment Scales

This section provides treatment goals based on elevated items from all Slightly Elevated, Elevated or Very Elevated Treatment Scales.

Peer Socialization

- Increase ability to carry on appropriate conversations with other children.
- Increase the amount of play with others.
- Increase the ability to understand and respond appropriately to humor.
- Improve quality of peer interactions.
- Increase the ability to respond appropriately when speaking to other children.

Social/Emotional Reciprocity

- Improve appropriate emotional expression in social interactions.
- Increase the ability to share enjoyable activities with others.
- Increase the ability to look at others appropriately while talking with them.
- Increase the ability to look at others when being spoken to.

Treatment Evaluation with ASRS

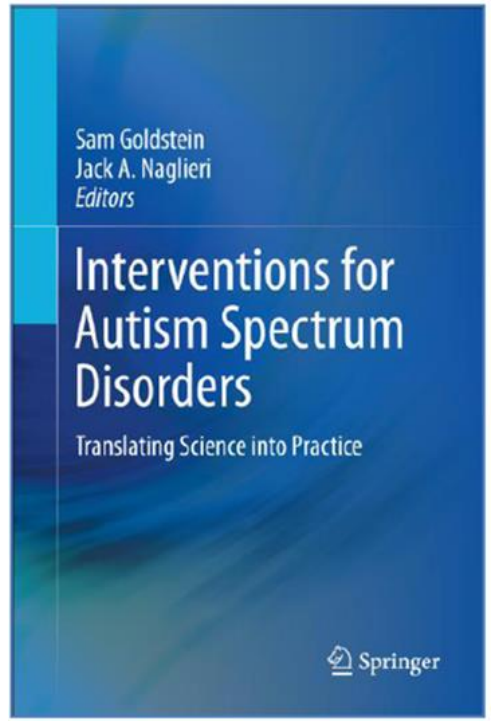
Chapter 3
Evaluation of Treatment Effectiveness in the Field of Autism

Psychometric Considerations and an Illustration

Jack A. Naglieri and Sam Goldstein

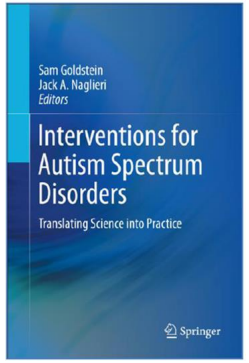
Introduction

Evidence-based treatment and the assessment of treatment effectiveness are dependent upon the collection of data during the evaluation process providing information about symptoms, impairment and abilities. Such an assessment allows for a seamless transition from assessment and diagnosis to effective treatment. Evaluating the effectiveness of a treatment strategy or program is important for interventions designed to address symptoms related to any psychological or developmental disorder. The



Treatment Evaluation with ASRS

- Step 1: Identify specific area or areas of need based on ASRS T-scores of 60 or more
- Which indicates many characteristics similar to individuals diagnosed with an ASD.
  - Examine ASRS Total Score
- The Total Score is, however, insufficient for treatment planning because it is too general.
- Step 2: Look at the separate treatment scales



Treatment Evaluation with ASRS

- Consistently high scores on Peer Socialization, Social/Emotional Reciprocity and Attention

	Parent	Teacher	Difference	Difference needed[a]	
Total score	*73*	*73*	0	5	NS
Social communication	*77*	*78*	1	6	NS
Unusual behavior	*60*	53	−7	6	Sig
Self-regulation	*70*	*74*	4	7	NS
DSM-IV scale	*69*	*68*	−1	6	NS
Treatment scales					
Peer socialization	*70*	*73*	3	9	NS
Adult socialization	58	*63*	5	12	NS
Social/emotional reciprocity	*77*	*76*	−1	8	NS
Atypical language	52	44	−8	11	NS
Stereotypy	49	54	5	13	NS
Behavioral rigidity	*72*	48	−24	8	Sig
Sensory sensitivity	*44*	48	4	12	NS
Attention	*71*	*73*	2	7	NS

T-scores greater than 59 appear in italic text

[a]*Note* Differences needed for significance when comparing Parent and Teacher ratings are found in Table 4.5 of the ASRS Manual

Treatment Evaluation with ASRS

- Item level analysis within Peer Socialization helps clarify the exact nature of the behaviors that led to the high score

3 Evaluation of Treatment Effectiveness in the Field of Autism 51

Fig. 3.7 Item level analysis from ASRS interpretive report (shaded items indicate scores that are more than 1 *SD* from the normative mean)

Peer Socialization	
Item	**Score**
3. seek the company of other children? (R)	1
14. have trouble talking with other children?	3
19. have social problems with children of the same age?	2
31. play with others? (R)	1
45. understand age-appropriate humor or jokes? (R)	0
50. talk too much about things that other children don't care about?	4
64. choose to play alone?	3
69. show good peer interactions? (R)	2
70. respond when spoken to by other children? (R)	1
Peer Socialization Raw Score =	**17**

Treatment Evaluation with ASRS

Quick Solution Finder

Peer Socialization

Peer Socialization	
Item	**Score**
14. have trouble talking with other children?	3
50. talk too much about things that other children don't care about?	4
64. choose to play alone?	3
69. show good peer interactions? (R)	2

Treatment Evaluation with ASRS

- The Quick Solution Guide provides the correspondence of behaviors associated with ASD and specific interventions provided by authors in the chapters that appear in the book.
- For example, a high ASRS T-score on the Social/Emotional Reciprocity scale and one of the items that addressed “looking at others when spoken to” was very high. Interventions for this behavior can be found on pages

Presentation Outline

- Introduction to ASD
- Building the ASRS
- **Importance of a national standardization sample**
- Autism Spectrum Rating Scale Validity
- Autism Spectrum Rating Scale Short Form
  - Structure, Reliability, & Validity
- ASRS Interpretation with other measures
- Conclusions

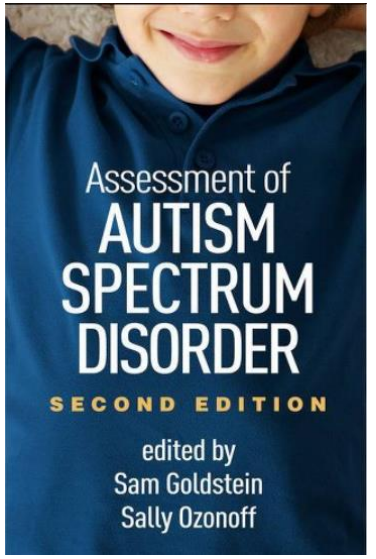
ASRS National Norm

- Sample was stratified by
  - Sex, age, race/ethnicity, parental education level (PEL; for cases rated by parents), geographic region

ASRS Standardization Samples by Age and Rater		
Age Groups	**Parent Raters**	**Teacher Raters**
2 - 5 Years	320	320
6 - 11 Years	480	480
12 - 18 Years	480	480
Sub Total n	1,280	1,280
TOTAL N	2,560	

Importance of a National Norm

- The way we calibrate a psychological test or rating scale score has a direct impact interpretation of the results
- The characteristics of the comparison group is especially important whenever diagnostic decisions are being made.
- See: Psychometric Issues by Naglieri & Chambers



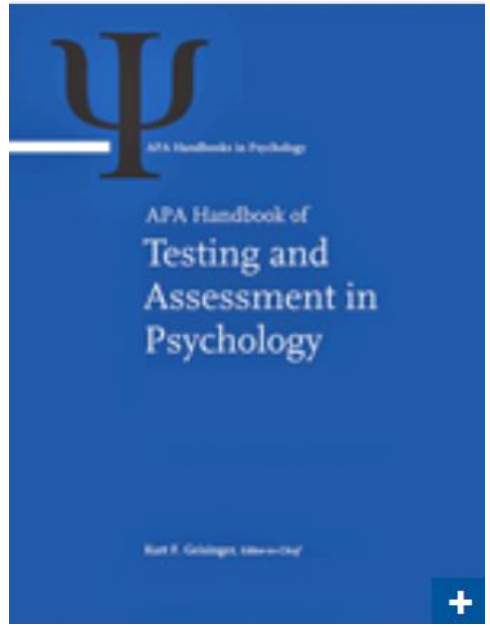
Psychometric Issues and Current Scales for Assessing Autism Spectrum Disorder

Jack A. Naglieri
Kimberly M. Chambers

The study of any psychological disorder is dependent upon the tools that are used, as these tools directly influence what is learned about the subject in research as well as clinical practice. As in all areas of science, what we discover depends upon the quality of the instruments we use and the information they provide. Better-made instruments yield more accurate and reliable information. Instruments that uncover more information relevant to the subject being examined will have better validity, and ultimately

Diagnostic Reference Groups

- What is the advantage of a national norm?
  - You know how typical children perform
    - Typical means a wide variety of individuals who vary on important demographic variables
- I compared scores based on a nationally representative sample to a sample of children identified as having Autism
  - Raw score to standard score (T-scores) conversion table was constructed based on two different reference groups



Naglieri, J. A. (2012). Psychological Assessment by School Psychologists: Opportunities and Challenges of A Changing Landscape. In K. Geisinger & B. A. Bracken (Eds.) *APA Handbook of Testing and Assessment in Psychology*. Washington, D.C.: American Psychological Association.

Comparison Groups

- The **sample of children with ASD (N = 243)**
  - Autism (*n* = 137), Asperger Syndrome (*n* = 80), or Pervasive Developmental Disorder-Not Otherwise Specified (*n* = 26) according to the DSM-IV-TR (APA, 2000) or ICD-10 (WHO, 2007)) using appropriate methods (e.g., record review, rating scales, observation, and interview).

➢ The **sample, representative of the US** population, included males and females from each of the four geographic regions of the US and racial-ethnic groups

Raw Scores to T scores

Shaded boxes = MEAN of the ASD and National Samples

A Raw Score of 130 is a T of 50 based on ASD sample

A Raw Score of 90 is a T of 42 based on the ASD sample

A Raw Score of 90 is a T of 42 based on ASD sample; but a T score of 60 (1 SD above the national reference group

ASRS Raw Score	ASD Comparison	National Comparison
145	53	75
140	52	74
135	51	73
130	**50**	71
125	49	70
120	48	69
115	47	67
110	46	66
105	45	64
100	44	63
95	43	62
90	42	60
85	41	59
[illegible]	40	57
75	38	56
70	37	55
65	36	53
60	35	52
55	**34**	**51**
50	**33**	**49**
45	32	48
40	31	46

Conclusion: Importance of a National Norm

- The diagnostic conclusions we reach are greatly influenced by the tools we use
- The composition of the reference group can make a substantial difference in the conclusions reached
- Norms that represent a typical population are needed for all assessment tools especially for those with ASD

Core Group Discussion → Deeper Learning

- **ASRS is very different type of rating scale**
  - **What advantages does a norms based approach give you? Do you have any other thoughts?**

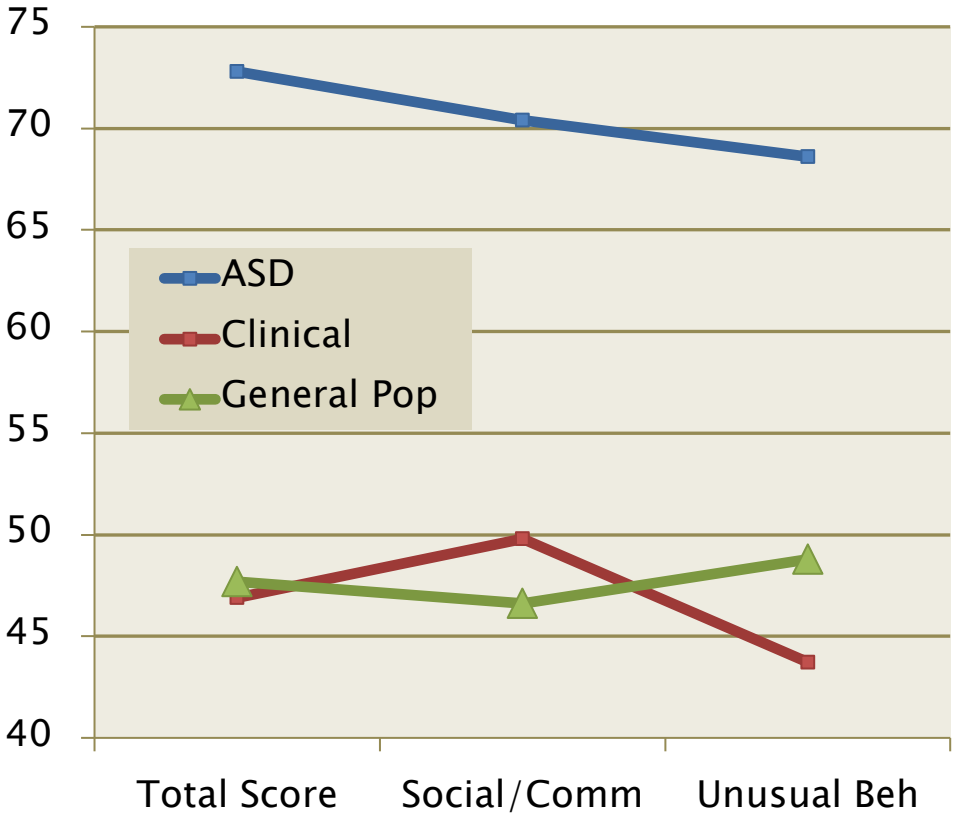
Presentation Outline

- An understanding of Autism Spectrum Disorders (ASD)
- Symptoms of ASD: Building the ASRS
- Importance of a national standardization sample
- **Autism Spectrum Rating Scale Validity**
- Autism Spectrum Rating Scale Short Form
  - Structure, Reliability, & Validity
- ASRS Interpretation with other measures
- Conclusions

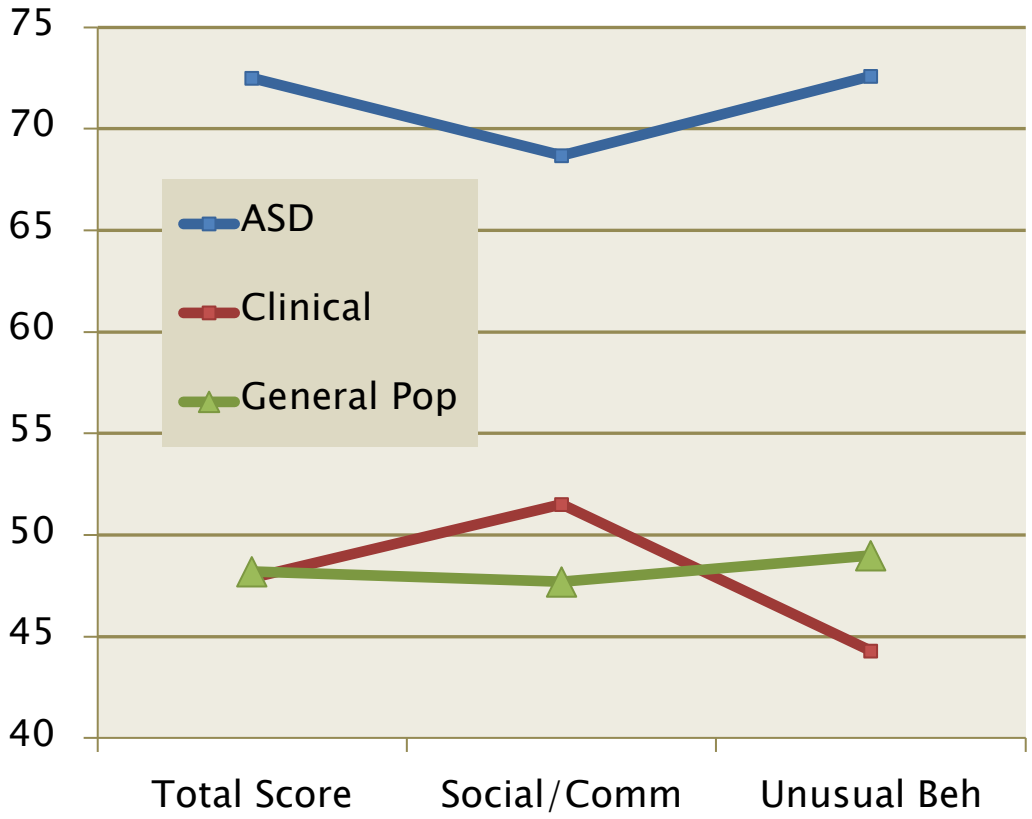
Validity of the Factors

- Factor analysis is a valuable tool to understand how items group
- But we also need to know if the items differentiate
  - those with ASD from the regular population
  - those who are not in the regular population but not ASD

ASRS Validity: Parents 2-5



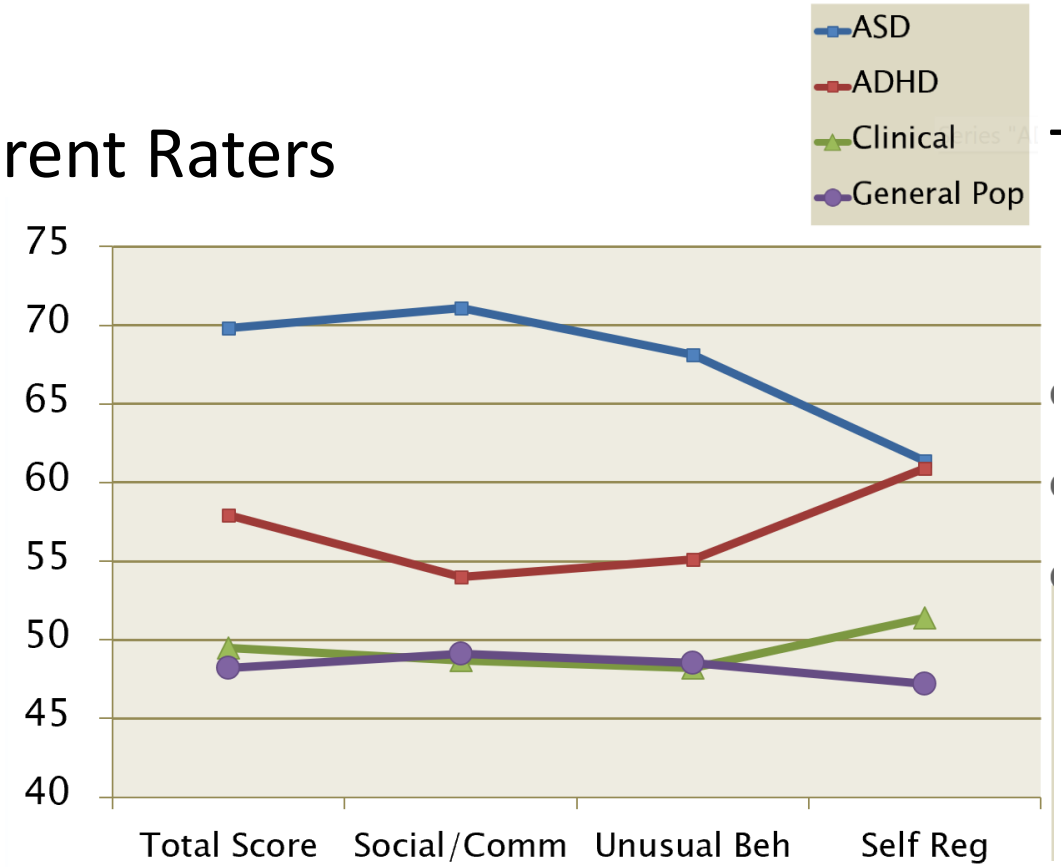
ASRS Validity: Teachers 2-5



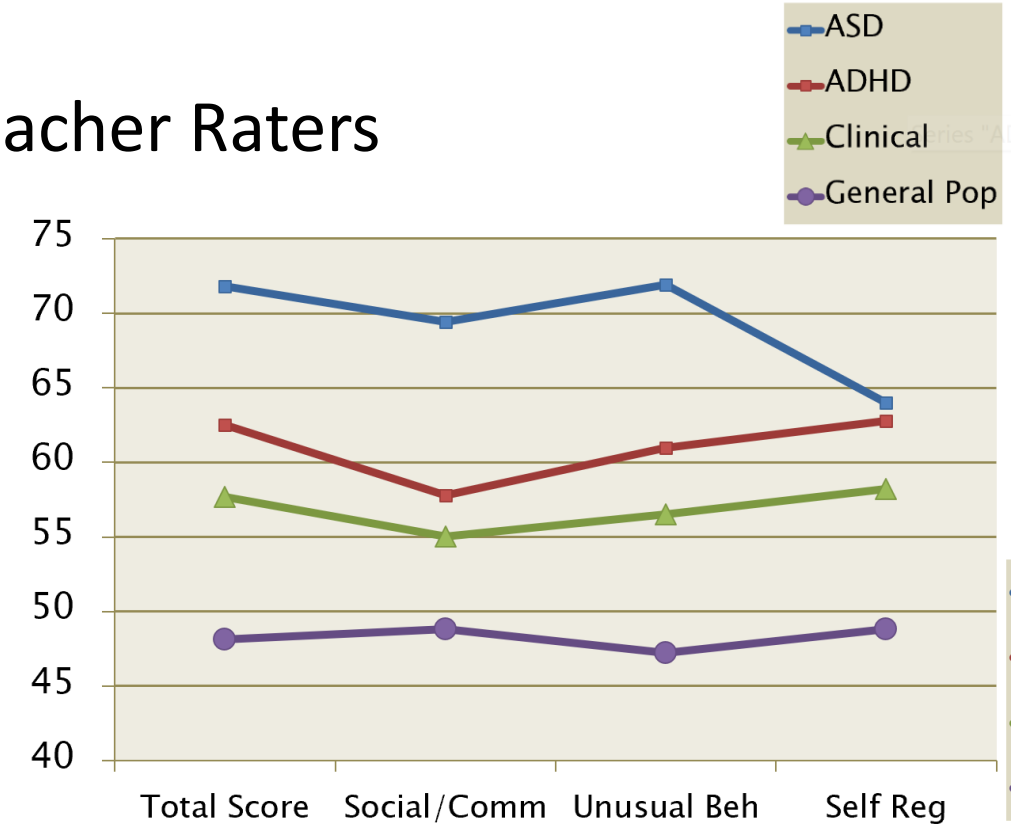
Note: Values from ASRS Manual (Goldstein & Naglieri, 2009) pages 66 – 67.

ASRS Validity Ages 6-18 Years:

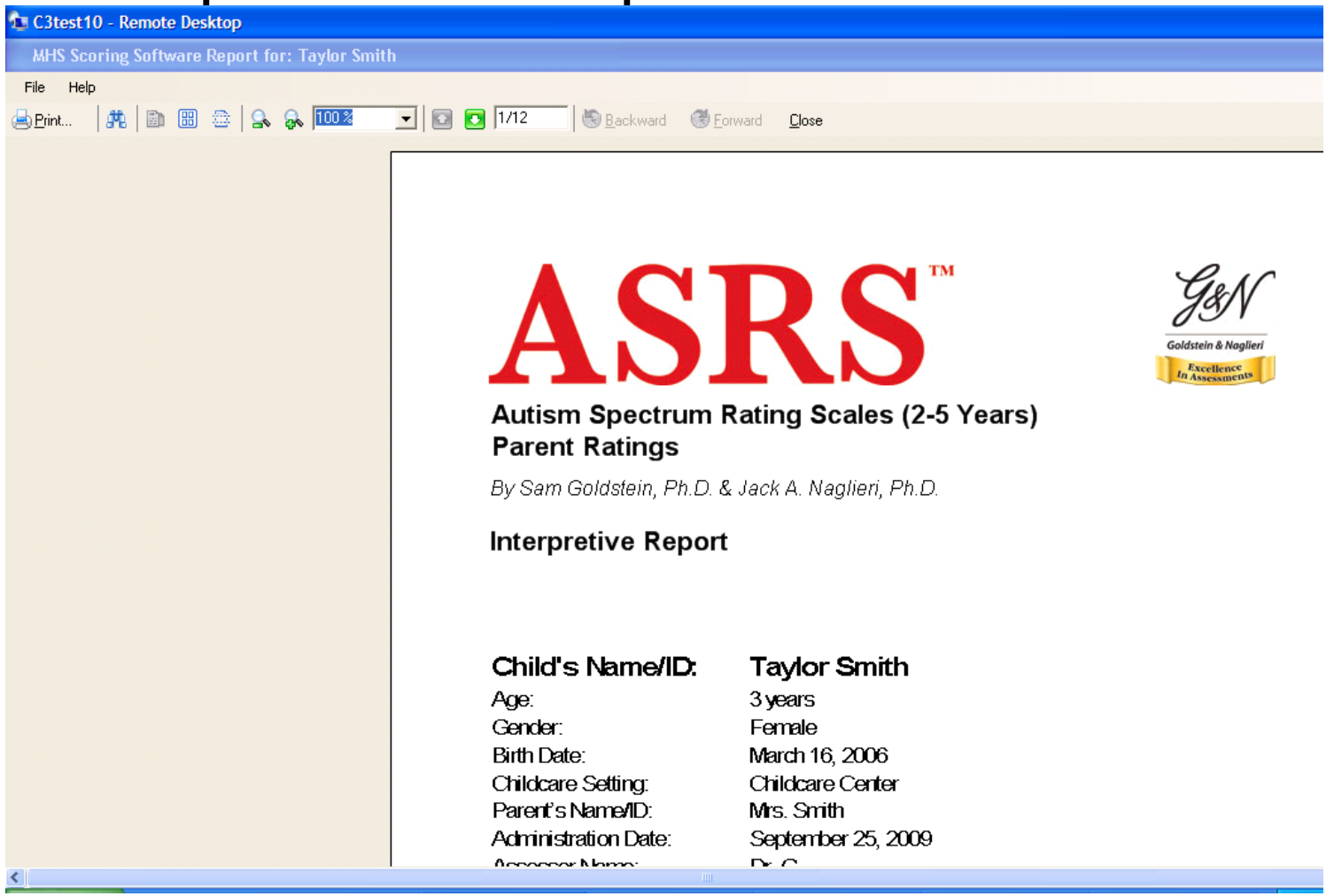
- Parent Raters



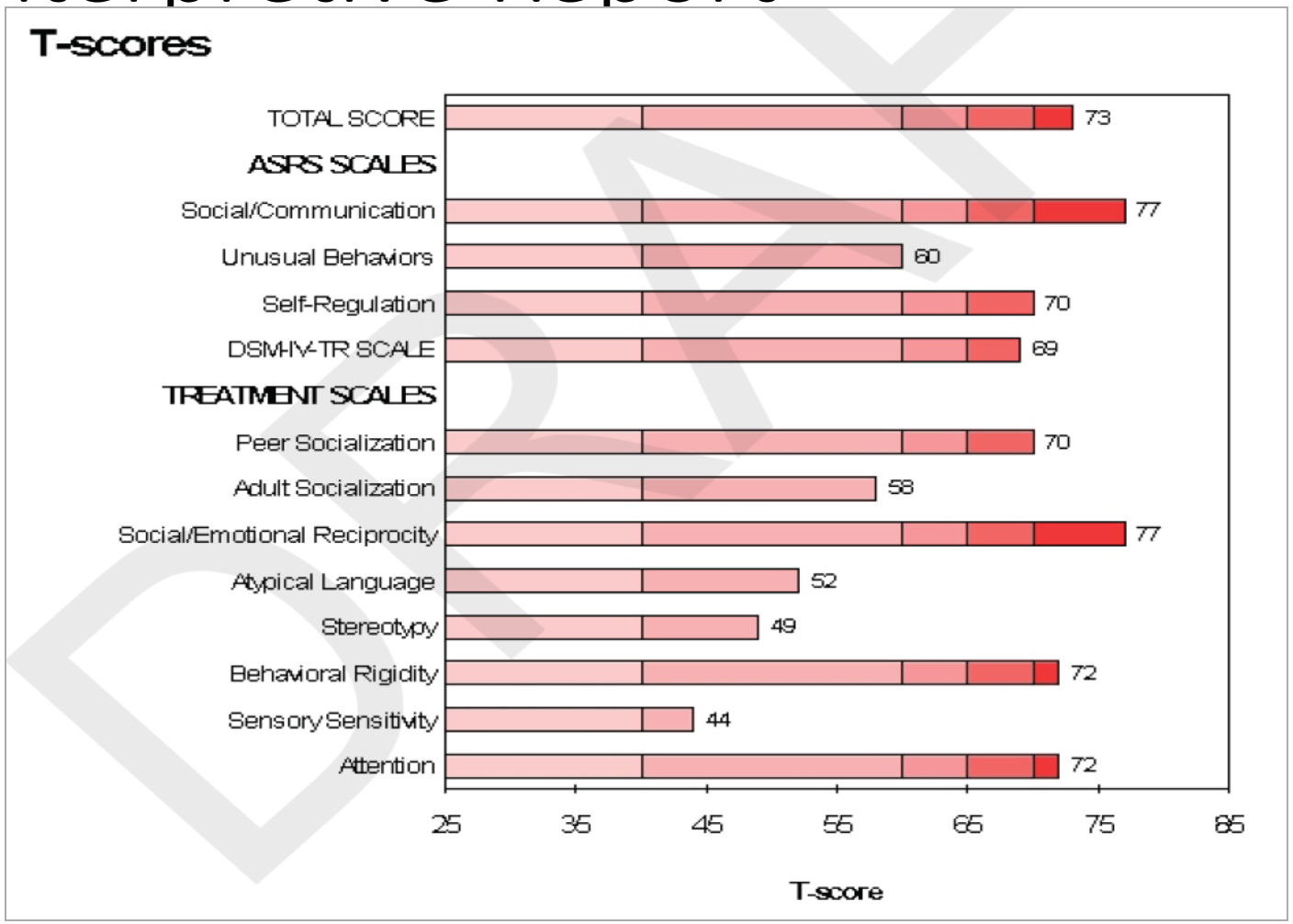
Teacher Raters



ASRS Interpretive Report



ASRS Interpretive Report



ASRS Interpretive Report

Summary of Results

The following section summarizes the rater's observations of Joey D on the ASRS (6-18 Years) Parent form. Scores reported in this section include the obtained T-score, along with the 90% confidence interval (i.e., there is a 90% probability that the true T-score falls within this range), as well as the percentile ranking of the score. Higher T-scores indicate greater problems. **Note:** CI = Confidence Interval.

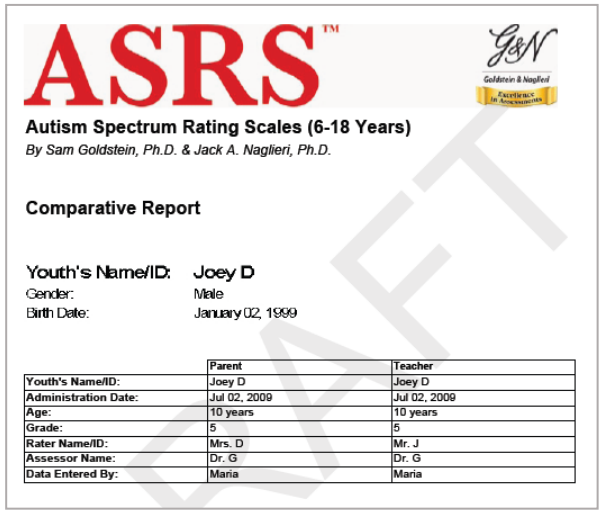
ASRS Scales

Ratings on the **Social/Communication** scale indicate the extent to which the youth uses verbal and non-verbal communication to initiate, engage in, and maintain social contact. Ratings on this scale yielded a T-score of 77 (90% CI = 72-79), which is ranked at the 99th percentile and falls in the Very Elevated Score range.

Ratings on the **Unusual Behaviors** scale indicate the youth's level of tolerance for changes in routine, engagement in apparently purposeless and stereotypical behaviors, and overreaction to certain sensory experiences. Ratings on this scale yielded a T-score of 60 (90% CI = 56-63), which is ranked at the 84th percentile and falls in the Slightly Elevated Score range.

Ratings on the **Self-Regulation** scale indicate how well the youth manages his behavior using a set of internalized rules to efficiently negotiate the environment. Ratings on this scale yielded a T-score of 70 (90% CI = 64-73), which is ranked at the 98th percentile and falls in the Very Elevated Score range.

ASRS Comparative Report



ASRS™

Autism Spectrum Rating Scales (6-18 Years)

By Sam Goldstein, Ph.D. & Jack A. Naglieri, Ph.D.

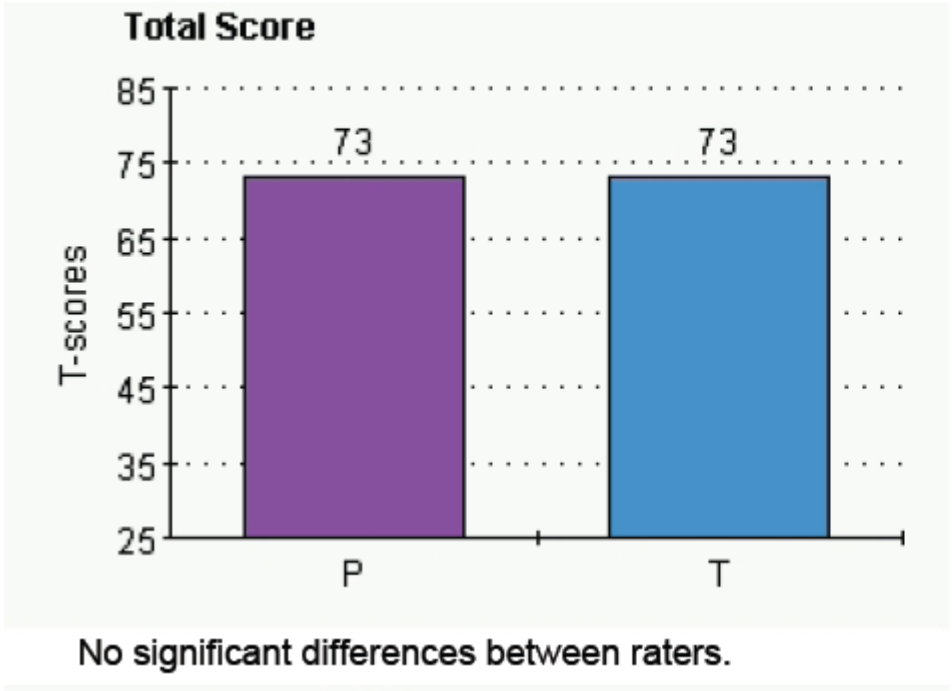
Comparative Report

Youth's Name/ID: Joey D
Gender: Male
Birth Date: January 02, 1999

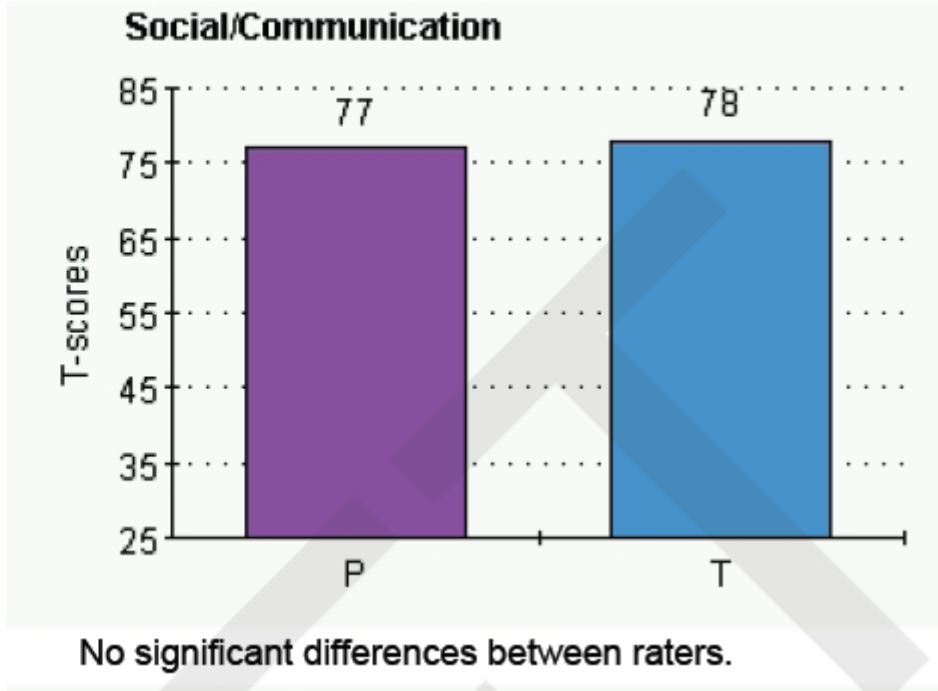
	Parent	Teacher
Youth's Name/ID:	Joey D	Joey D
Administration Date:	Jul 02, 2009	Jul 02, 2009
Age:	10 years	10 years
Grade:	5	5
Rater Name/ID:	Mrs. D	Mr. J
Assessor Name:	Dr. G	Dr. G
Data Entered By:	Maria	Maria

T-scores: Scale-Level Comparisons across Raters

Note: P = Parent and T = Teacher.



No significant differences between raters.



No significant differences between raters.

ASRS Comparative Report

TREATMENT SCALES				
Peer Socialization	T-score	70	73	No significant difference
	90% CI	62-73	65-75	
	Percentile	98	99	
Adult Socialization	T-score	58	63	No significant difference
	90% CI	49-63	54-67	
	Percentile	79	90	
Social/Emotional Reciprocity	T-score	77	76	No significant difference
	90% CI	69-79	69-78	
	Percentile	99	99	
Atypical Language	T-score	52	44	No significant difference
	90% CI	46-58	39-51	
	Percentile	58	27	
Stereotypy	T-score	49	54	No significant difference
	90% CI	43-56	46-60	
	Percentile	46	66	
Behavioral Rigidity	T-score	72	48	P > T
	90% CI	65-75	44-53	
	Percentile	99	42	
Sensory Sensitivity	T-score	44	48	No significant difference
	90% CI	39-51	42-55	
	Percentile	27	42	
Attention	T-score	72	73	No significant difference
	90% CI	65-75	67-76	
	Percentile	99	99	

Your Questions or Thoughts?

Presentation Outline

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Short Form

ARS010

ASRS™ Short Form (6–18 Years)

Sam Goldstein, Ph.D. & Jack A. Naglieri, Ph.D.

Child's Name/ID: _____ Gender: M F (Circle One) Grade: ____ Today's Date: ____/____/____ (Year / Month / Day)

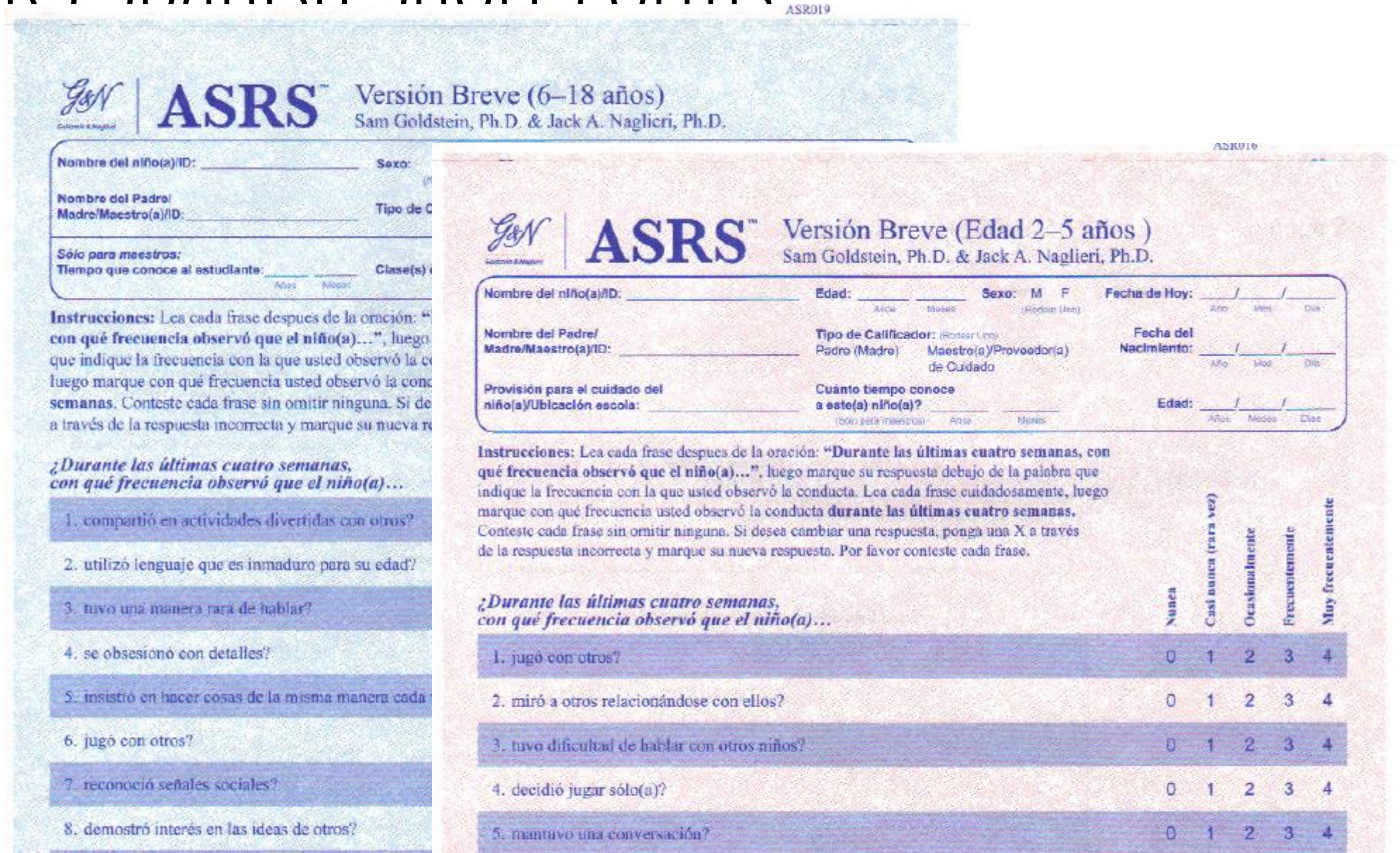
Parent's/Teacher's Name/ID: _____ Rater Type: Parent Teacher (Circle One) Birth Date: ____/____/____ (Year / Month / Day)

For Teachers Only: Time Known Student: ____ ____ (Years / Months) Class(es) Taught: _____ Age: ____/____/____ (Years / Months / Days)

Instructions: Read each statement that follows the phrase, "***During the past four weeks, how often did the child…,***" then circle the number under the word that tells how often you saw the behavior. Read each question carefully, then mark how often you saw the behavior **in the past four weeks.** 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.

During the past four weeks, how often did the child…	Never	Rarely	Occasionally	Frequently	Very Frequently
1. share fun activities with others?	0	1	2	3	4
2. use language that was immature for his/her age?	0	1	2	3	4
3. use an odd way of speaking?	0	1	2	3	4
4. become obsessed with details?	0	1	2	3	4
5. insist on doing things the same way each time?	0	1	2	3	4

ASRS Spanish Short Forms



ASR019

ASRS™ Versión Breve (6–18 años)
Sam Goldstein, Ph.D. & Jack A. Naglieri, Ph.D.

Nombre del niño(a)/ID: _____ Sexo:

Nombre del Padre/ Madre/Maestro(a)/ID: _____ Tipo de C

Sólo para maestros:
Tiempo que conoce al estudiante: ____ ____ Clase(s)
Años Meses

Instrucciones: Lea cada frase despues de la oración: "**con qué frecuencia observó que el niño(a)…**", luego que indique la frecuencia con la que usted observó la c luego marque con qué frecuencia usted observó la conc **semanas**. Conteste cada frase sin omitir ninguna. Si de a través de la respuesta incorrecta y marque su nueva re

¿Durante las últimas cuatro semanas, con qué frecuencia observó que el niño(a)…

1. compartió en actividades divertidas con otros?
2. utilizó lenguaje que es inmaduro para su edad?
3. tuvo una manera rara de hablar?
4. se obsesionó con detalles?
5. insistió en hacer cosas de la misma manera cada
6. jugó con otros?
7. reconoció señales sociales?
8. demostró interés en las ideas de otros?

ASR016

ASRS™ Versión Breve (Edad 2–5 años)
Sam Goldstein, Ph.D. & Jack A. Naglieri, Ph.D.

Nombre del niño(a)/ID: _____ Edad: ____ ____ Sexo: M F Fecha de Hoy: ___/___/___
Años Meses (Rodear Uno) Año Mes Día

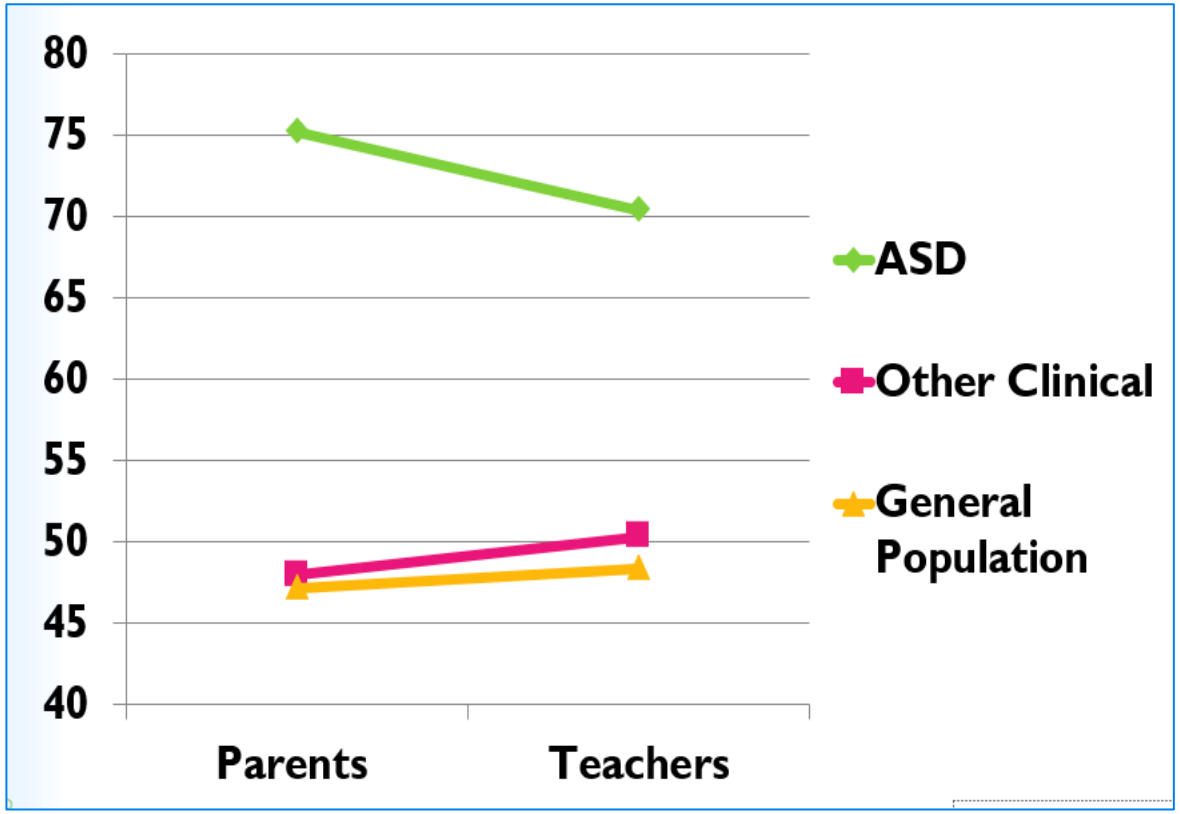
Nombre del Padre/ Madre/Maestro(a)/ID: _____ Tipo de Calificador: (Rodear Uno) Padre (Madre) Maestro(a)/Proveedor(a) de Cuidado Fecha del Nacimiento: ___/___/___
Año Mes Día

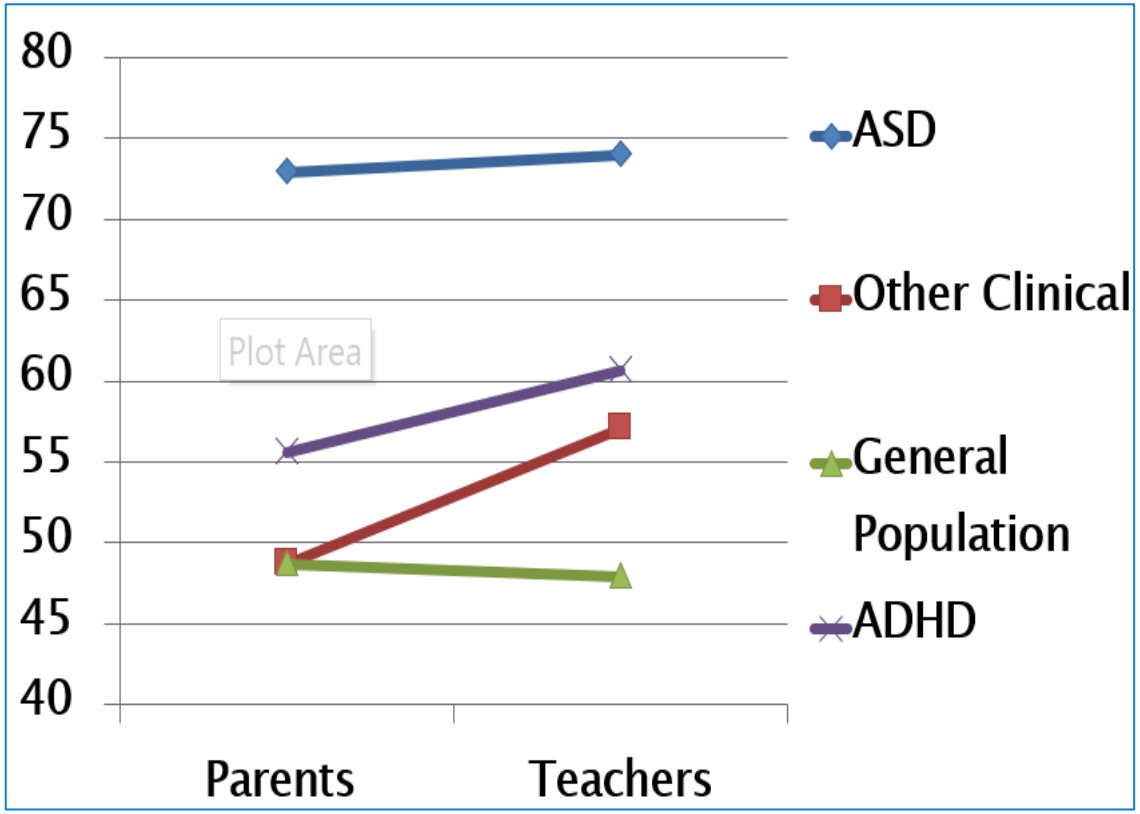
Provisión para el cuidado del niño(a)/Ubicación escola: _____ Cuanto tiempo conoce a este(a) niño(a)? (Sólo para maestros) Años ____ Meses ____ Edad: ___/___/___
Años Meses Días

Instrucciones: Lea cada frase despues de la oración: **"Durante las últimas cuatro semanas, con qué frecuencia observó que el niño(a)…"**, luego marque su respuesta debajo de la palabra que indique la frecuencia con la que usted observó la conducta. Lea cada frase cuidadosamente, luego marque con qué frecuencia usted observó la conducta **durante las últimas cuatro semanas.** Conteste cada frase sin omitir ninguna. Si desea cambiar una respuesta, ponga una X a través de la respuesta incorrecta y marque su nueva respuesta. Por favor conteste cada frase.

¿Durante las últimas cuatro semanas, con qué frecuencia observó que el niño(a)…	Nunca	Casi nunca (rara vez)	Ocasionalmente	Frecuentemente	Muy frecuentemente
1. jugó con otros?	0	1	2	3	4
2. miró a otros relacionándose con ellos?	0	1	2	3	4
3. tuvo dificultad de hablar con otros niños?	0	1	2	3	4
4. decidió jugar sólo(a)?	0	1	2	3	4
5. mantuvo una conversación?	0	1	2	3	4

Short Form - Validity 2-5 Yrs





ASRS Short Form - Reliability

Table 9.2. Internal Consistency [redacted]

Age	Rater	Cronbach's Alpha		
		Norm	Clinical	Average
2–5 Years	Parent	.86	.96	.92
	Teacher/Childcare Provider	.89	.96	.93
6–11 Years	Parent	.90	.94	.92
	Teacher	.89	.92	.91
12–18 Years	Parent	.88	.95	.92
	Teacher	.90	.93	.92

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ADOS and ASRS Sample Description

- University of Virginia *Autism Genetic Resource Exchange* (*AGRE*) project data
- Sample selection
  - If the child met criteria for ASD or Autism on the ADOS and met criteria for Autism on the ADI-R, they were considered to be on the autism spectrum - ASD or Autism - (whichever they met according to the ADOS).
  - In the AGRE dataset the ADOS is used in conjunction with the ADI to classify the child

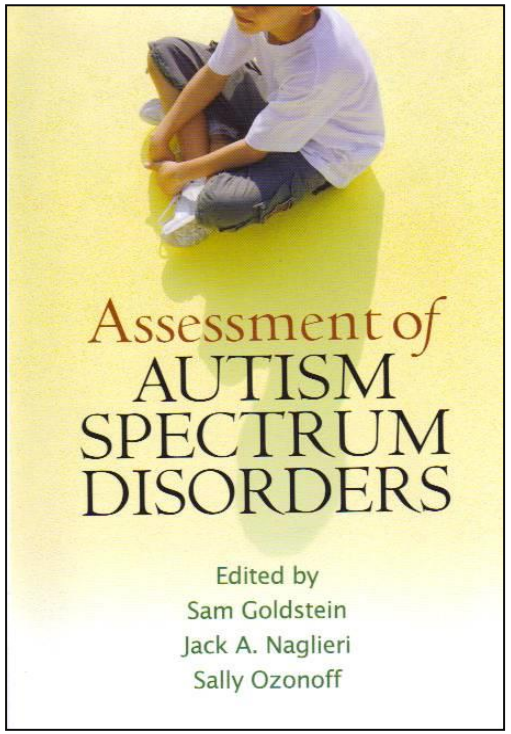
Sample Description

- Ages 6-18 (Mean = 10.3; SD = 3.1)
- 82% (N = 74) Males, 18% (N = 16) Females
- N = 90

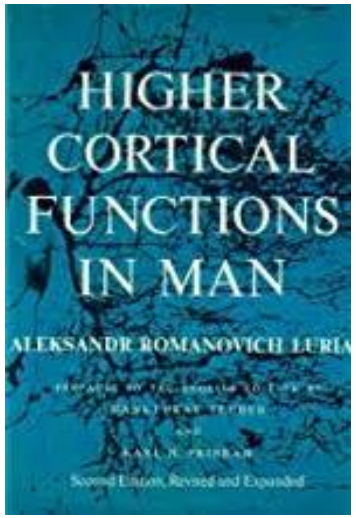
	ADOS Diagnosis	ASRS Total (T > 59)
Autism	81	80
No Diagnosis	9	10

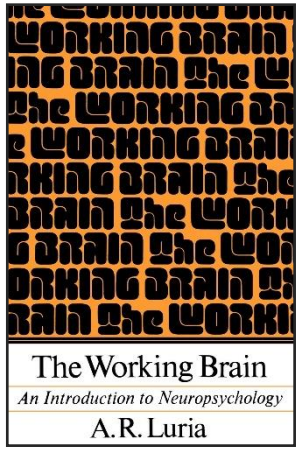
ASRS & Attention Difficulty

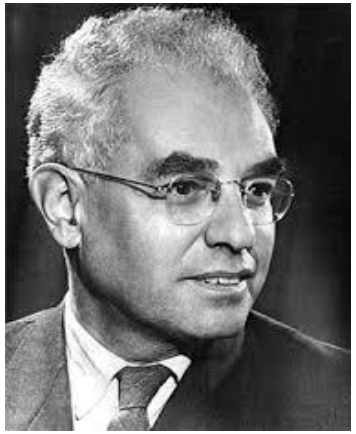
- Individuals with ASD have been described as having "***difficulties in disengaging and shifting attention***" (p. 214) (see Klinger, O'Kelley, & Mussey's chapter 8 in *Assessment of Autism Spectrum Disorders* (Goldstein, Naglieri, & Ozonoff, 2009)
- the ASRS (6–18 Years) and Cognitive Assessment System (CAS; Naglieri & Das, 1997) was administered to children diagnosed with an ASD

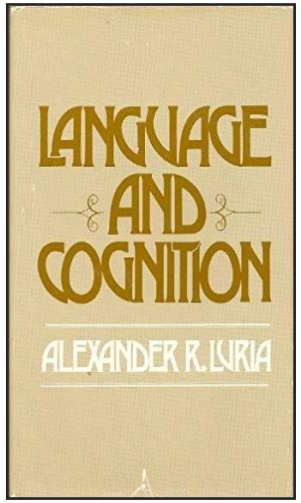


PASS Neurocognitive Theory







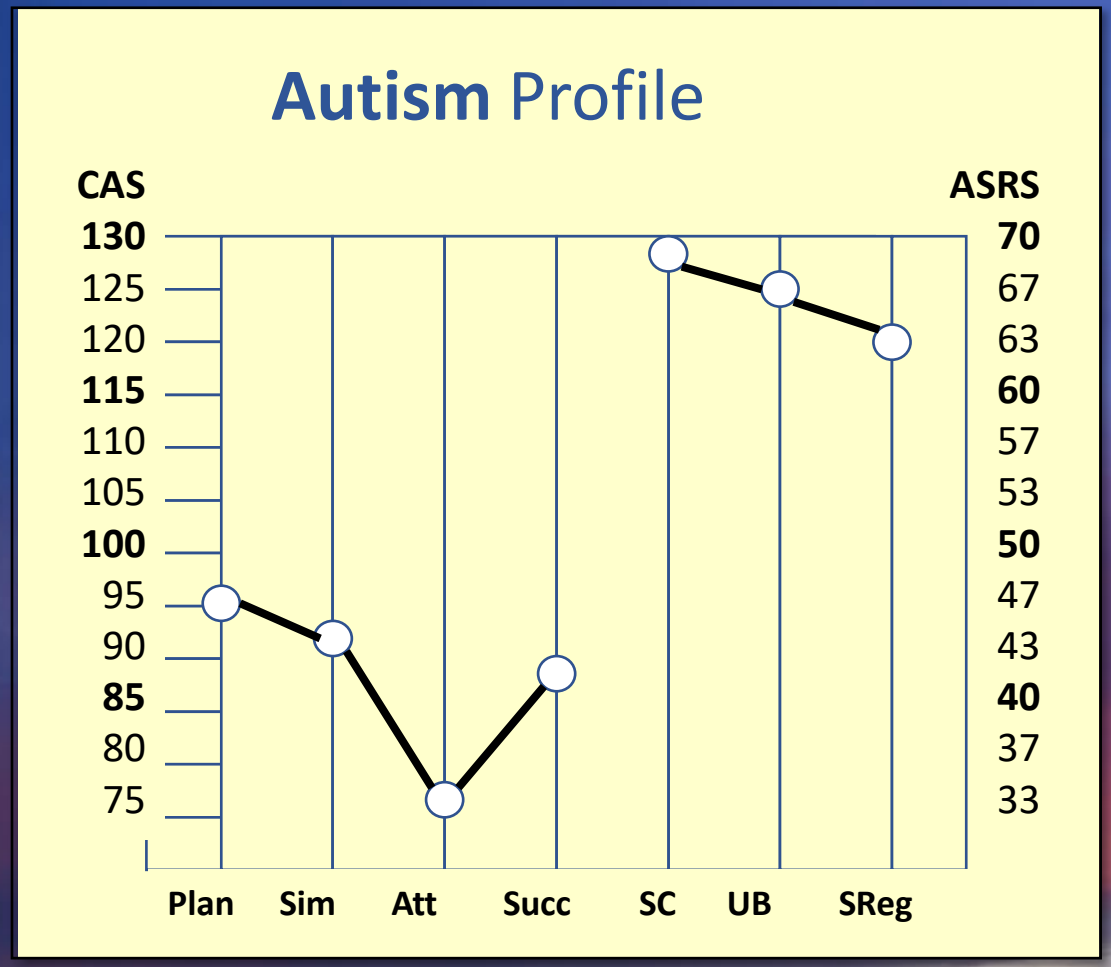


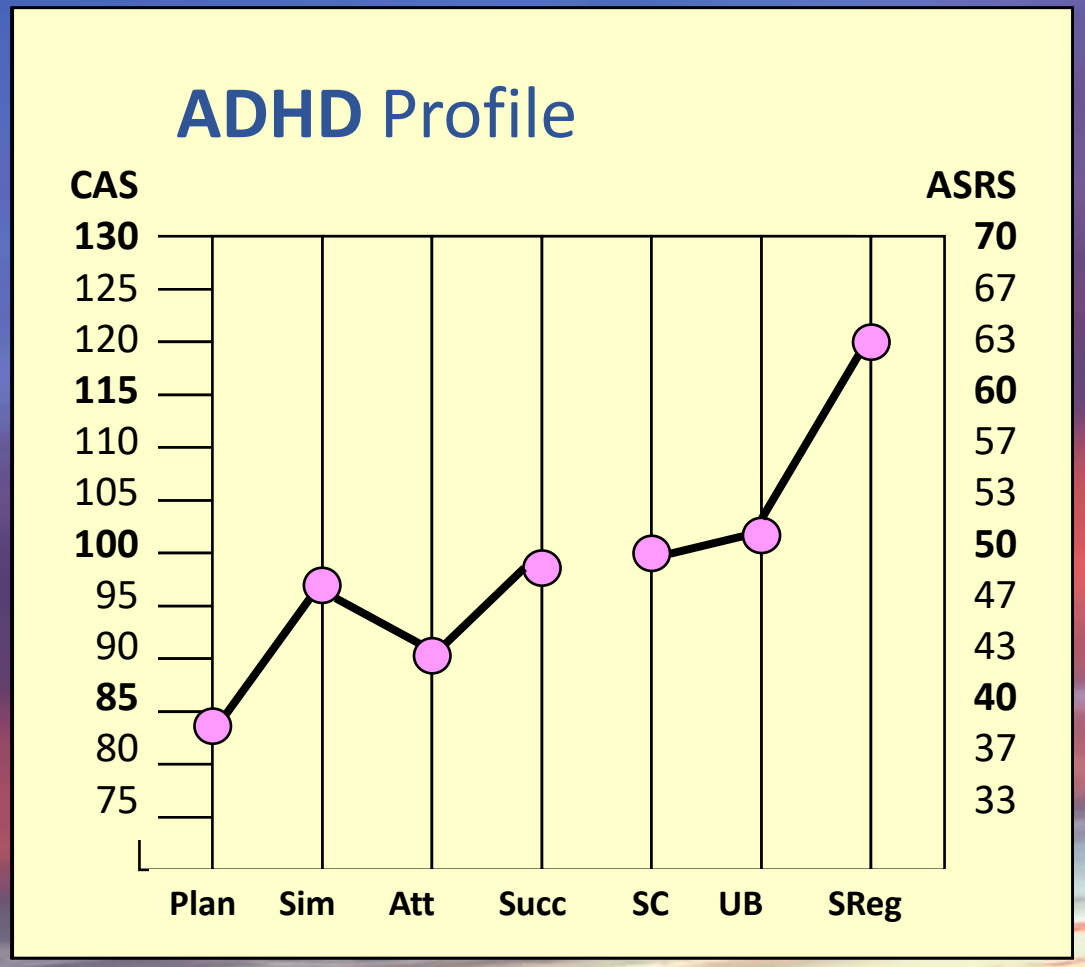
- **P**lanning = THINKING ABOUT HOW YOU DO WHAT YOU DECIDE TO DO
- **A**ttention = BEING ALERT AND RESISTING DISTRACTIONS
- **S**imultaneous = GETTING THE BIG PICTURE
- **S**uccessive = FOLLOWING A SEQUENCE

PASS = 'basic psychological processes'

NOTE: Easy to understand concepts!

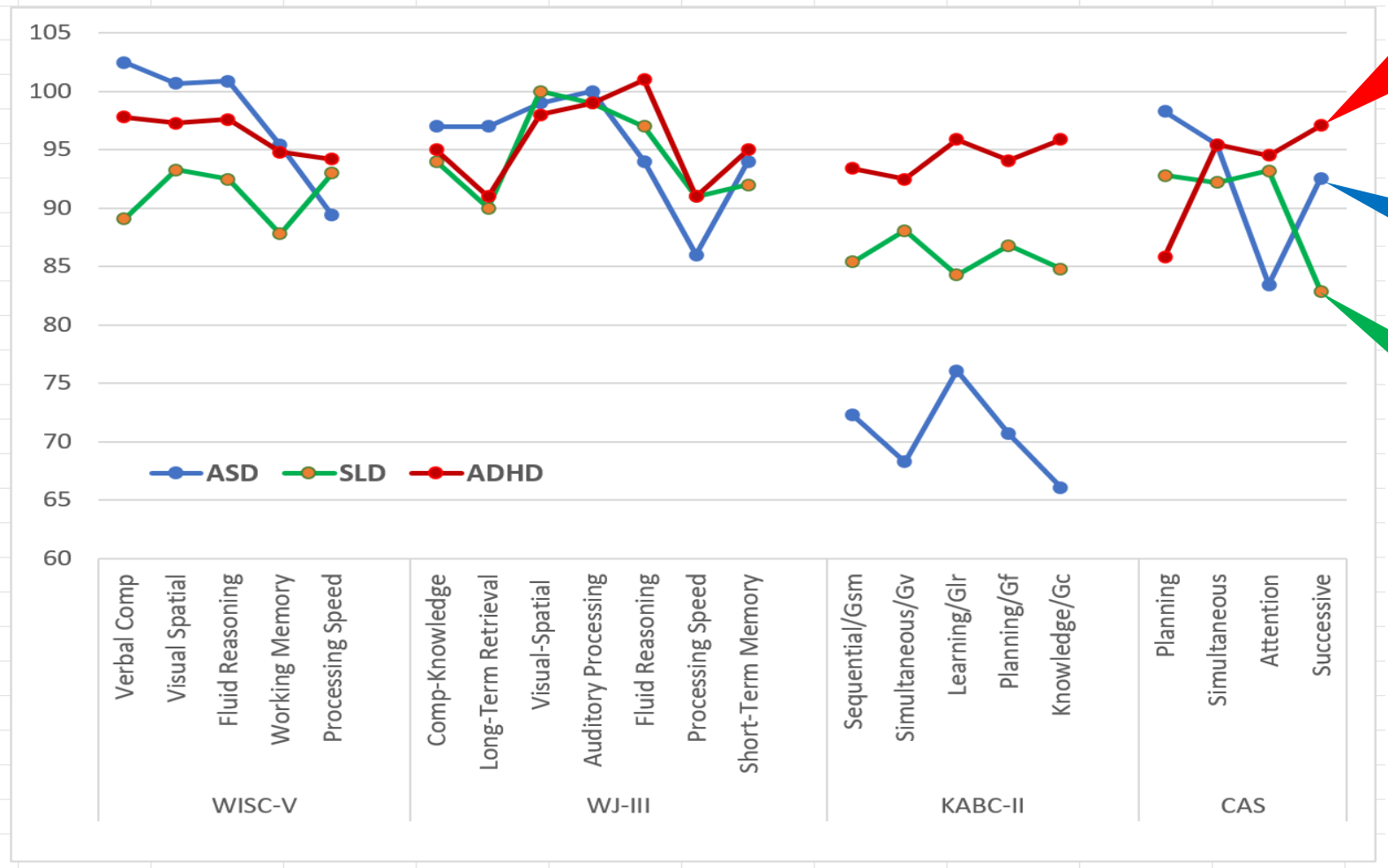
Differential Diagnosis: ADHD vs ASD





These profiles across tests is very revealing - PASS works

Patterns of Strengths & Weaknesses



ADHD (Low Planning)

ASD – Low Attention

Dyslexia – Low Successive

Autism & Asperger's

AUTISM SPECTRUM NEWS visit our website: www.mhnews-autism.org WINTER 2012

Autism and Asperger's: Two Distinct Disorders or One Disorder of Varying Symptom Severity

By Sam Goldstein, PhD, and
Jack A. Naglieri, PhD

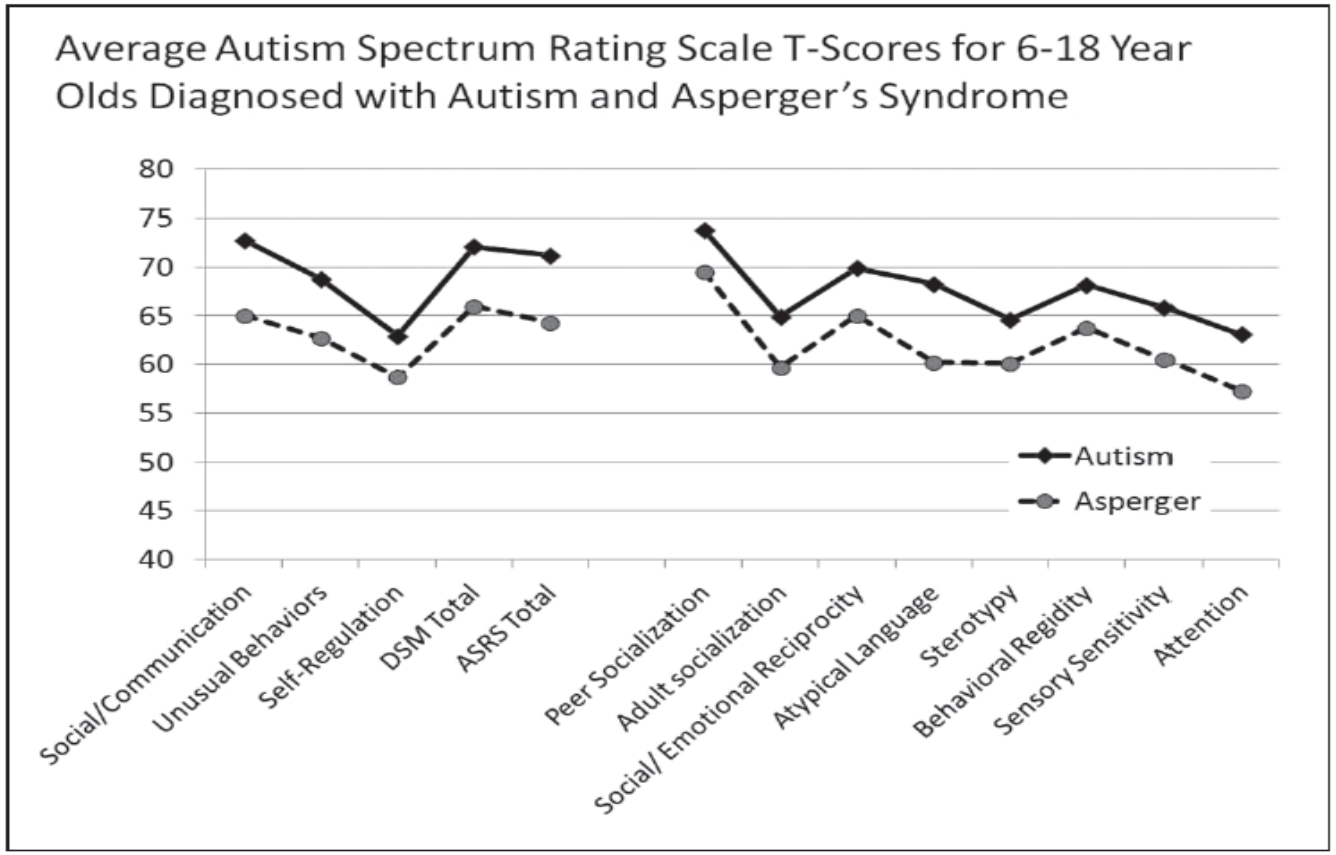
Autism has been conceptualized as a biologically determined set of behaviors occurring with varying presentation and severity that is likely as the result of varying cause (for review, see Goldstein, Naglieri, & Ozonoff, 2008). The disorder occurs significantly more often in boys (Smalley, Asernow, & Spence, 1988) and is found across all social classes (Gillberg & Schaumann, 1982). Recent surveys have suggested the incidence of autism in the general population may be as high as 1 per 113 (Center for Disease Control, 2007). Autism is a disorder in which individuals can present problems ranging from those that cause almost total impairment to others that allow the individual to function but not optimally. Children on the Autism Spectrum or continuum experience a wide range of developmental difficulties involving communication, socialization, thinking, cognitive skills, interests, activities and motor skills (Goldstein, Naglieri, & Ozonoff, 2008).

The Diagnostic and Statistical Manual IV – Text Revision (DSM-IV-TR) of the American Psychiatric Association (APA, 2000) criteria include a group of Pervasive Developmental Disorders under which Autism and Asperger's are considered two distinct conditions. The criteria for Autistic Disorder include three sets of behavioral descriptions to qualify for the diagnosis. A child must show evidence of symptoms from at least two of the first set of criteria and one from each of the second and third sets of criteria. The first set of criteria features qualitative impairment and social interaction manifested by problems

preoccupation in certain patterns of behavior that would be considered abnormal in intensity or focus; compulsive adherence to specific non-functional routines or rituals, repetitive motor mannerisms (self-stimulatory behavior), or persistent preoccupation with parts of objects. The second two sets of criteria include delay prior to the age of three in social interaction, language as used for social communication or symbolic, imaginative play.

Though considered a distinct disorder in the DSM-IV-TR, Asperger's provides criteria identical to the Autism diagnosis for qualitative impairment in social interaction and restrictive, repetitive and stereotypic patterns of behavior. There is, however, no requirement for a qualitative impairment in communication. Specifically, this diagnosis requires an absence of clinically significant delay in language, acquiring single words by two years of age and communicative phrases used by three years of age. Because of the significant overlap in the diagnoses of these two conditions, most medical and mental health professions consider Asperger's as a milder form of autism or even "high functioning autism" despite the fact that it is not delineated this way in the DSM-IV-TR. In fact, proposals for the Pervasive Developmental Disorder categories for DSM-V have recommended the elimination of the distinction between these two conditions and instead propose to refer to the combined conditions as Autism Spectrum Disorder (American Psychiatric Association, in press).

The new proposed diagnostic criteria contain four parts focusing on (1) social communication and social interaction, (2) restricted, repetitive patterns of behavior, interests and activities; (3) symptoms present in early childhood; and (4) symptoms that limit and impair everyday life. This approach suggests

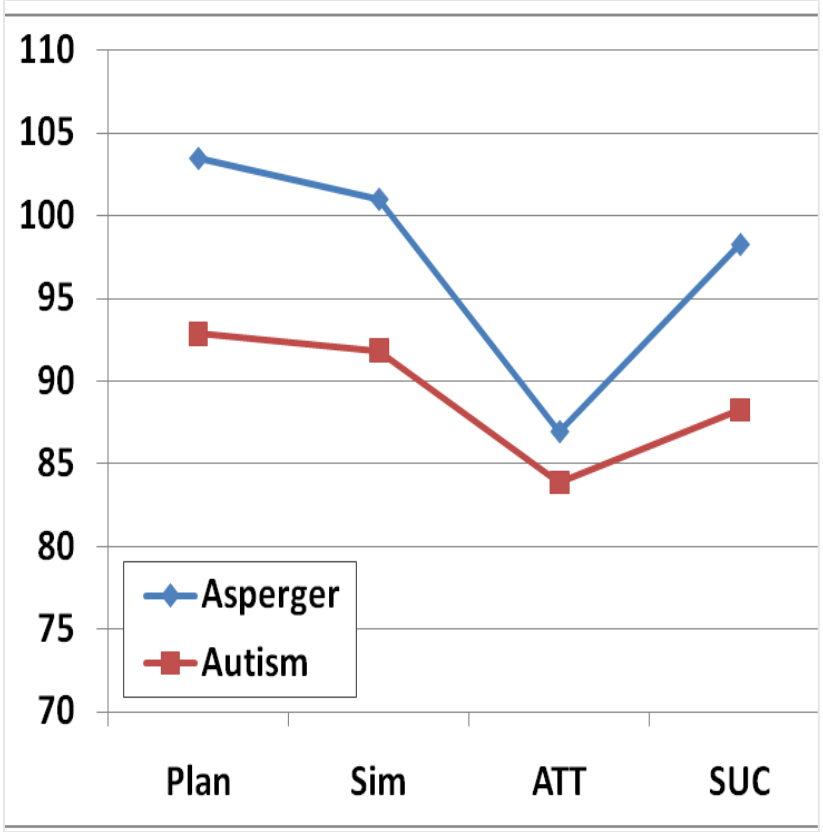


the current conceptualization of and diagnostic criteria for Asperger's as a condition characterized by normal early language development. These findings strongly suggest that the difference Autism and Asperger's syndrome is *based on severity* not a different composition

Author.

Gillberg, C., & Schaumann, H. (1982). Social class and autism: Total population aspects. *Journal of Autism and Developmental Disorders, 12*, 223-228

Autism vs Asperger 6-18



Descriptive Statistics and Comparisons Between Individuals with Autism (*n* = 20) and Asperger Syndrome (*n* = 23).

		Mn	*SD*	*F*	Sig	*d*-ratio
PLAN	Asperger	103.5	31.6	1.71	.20	0.40
	Autism	92.9	19.2			
SIM	Asperger	101.0	15.3	3.33	.08	0.54
	Autism	91.9	17.5			
ATT	Asperger	86.9	17.7	0.30	.59	0.17
	Autism	83.9	18.8			
SUC	Asperger	98.3	15.7	2.46	.12	0.47
	Autism	88.3	25.6			

An Important Case from Norway

PASS scores from CAS and Autism Spectrum Rating Scale (ASRS) results

- **From school:**
- 14-Year-old young man has good social functions with certain limits e.g. rigidity. Many interests, but some of them were thought of as childish by his peers.
- Reading: OK reading, making appropriate progress.
- Difficulties with multi-syllable-words
- Difficulties with finding words. Mispronunciations, received services by speech therapist.

- **From parents:**
- Autism diagnosed at age 7.
- He has had a great deal of his schooling as 1-1 with a special needs teacher or assistant.
- In school-years 8-10 a lot of outdoors activities and kitchen work, not so much curriculum content, which the parents think he could benefit from.
- We met him one year ago, for three days assessment and teaching. Based on this, and the CAS2 and Autism Spectrum Rating Scale from 2018 we completed an evaluation and recommendations for his schooling.

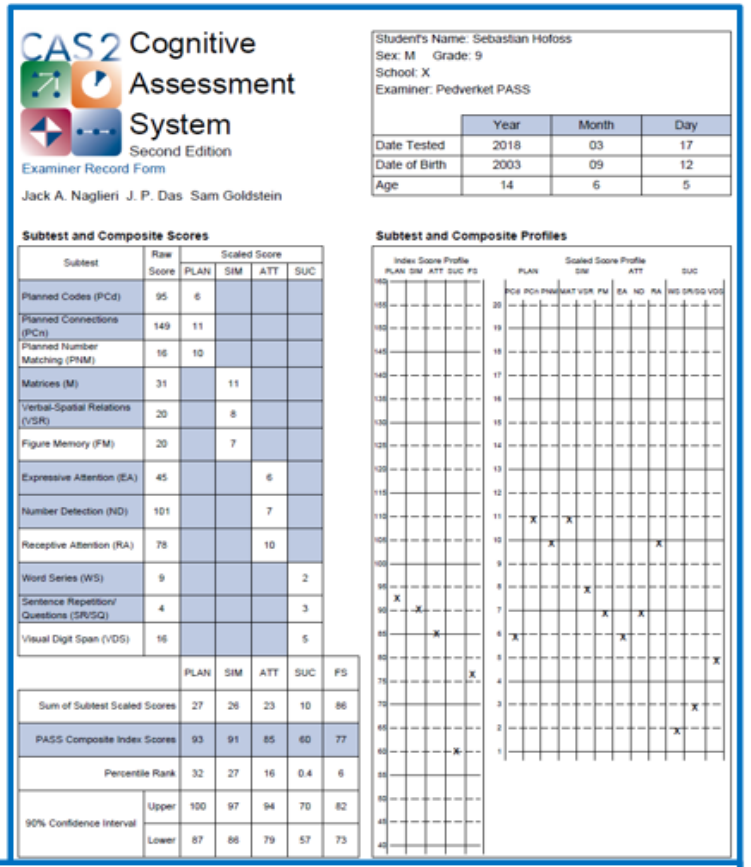
PASS Scores – Successive Processing Weakness and Social Communication Problems

Scale	T-score (90% CI)	Percentile	Classification	Interpretive Guideline
TOTAL SCORE				
Total Score	52 (49-55)	58	Average Score	No problem indicated.
ASRS SCALES				
Social/ Communication	64 (59-67)	92	Slightly Elevated Score	Has difficulty using verbal and non-verbal communication appropriately to initiate, engage in, and maintain social contact.
Unusual Behaviors	54 (50-58)	66	Average Score	No problem indicated.
Self-Regulation	37 (34-42)	10	Low Score	No problem indicated.

ASRS®

Autism Spectrum Rating Scales (6-18 Years) Parent Ratings

By Sam Goldstein, Ph.D. & Jack A. Naglieri, Ph.D.



CAS2 Cognitive Assessment System Second Edition

Examiner Record Form

Jack A. Naglieri J. P. Das Sam Goldstein

Student's Name: Sebastian Hofoss
Sex: M Grade: 9
School: X
Examiner: Pedverket PASS

	Year	Month	Day
Date Tested	2018	03	17
Date of Birth	2003	09	12
Age	14	6	5

Subtest and Composite Scores

Subtest	Raw Score	Scaled Score PLAN	SIM	ATT	SUC
Planned Codes (PCd)	95	6			
Planned Connections (PCn)	149	11			
Planned Number Matching (PNM)	16	10			
Matrices (M)	31		11		
Verbal-Spatial Relations (VSR)	20		8		
Figure Memory (FM)	20		7		
Expressive Attention (EA)	45			6	
Number Detection (ND)	101			7	
Receptive Attention (RA)	78			10	
Word Series (WS)	9				2
Sentence Repetition/ Questions (SR/SQ)	4				3
Visual Digit Span (VDS)	16				5

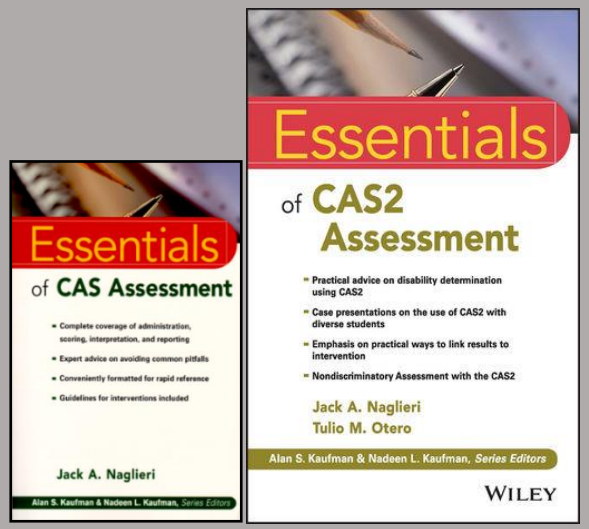
		PLAN	SIM	ATT	SUC	FS
Sum of Subtest Scaled Scores		27	26	23	10	86
PASS Composite Index Scores		93	91	85	60	77
Percentile Rank		32	27	16	0.4	6
90% Confidence Interval	Upper	100	97	94	70	82
	Lower	87	86	79	57	73

Subtest and Composite Profiles

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

Cognitive Assessment System - 2		Difference from PASS Mean of:	Significantly Different (at p = .05) from PASS Mean?	Strength or Weakness
PASS Scales	Standard Score	82.3		
Planning	93	10.8	yes	
Simultaneous	91	8.8	yes	
Attention	85	2.8	no	
Successive	60	-22.3	yes	Weakness

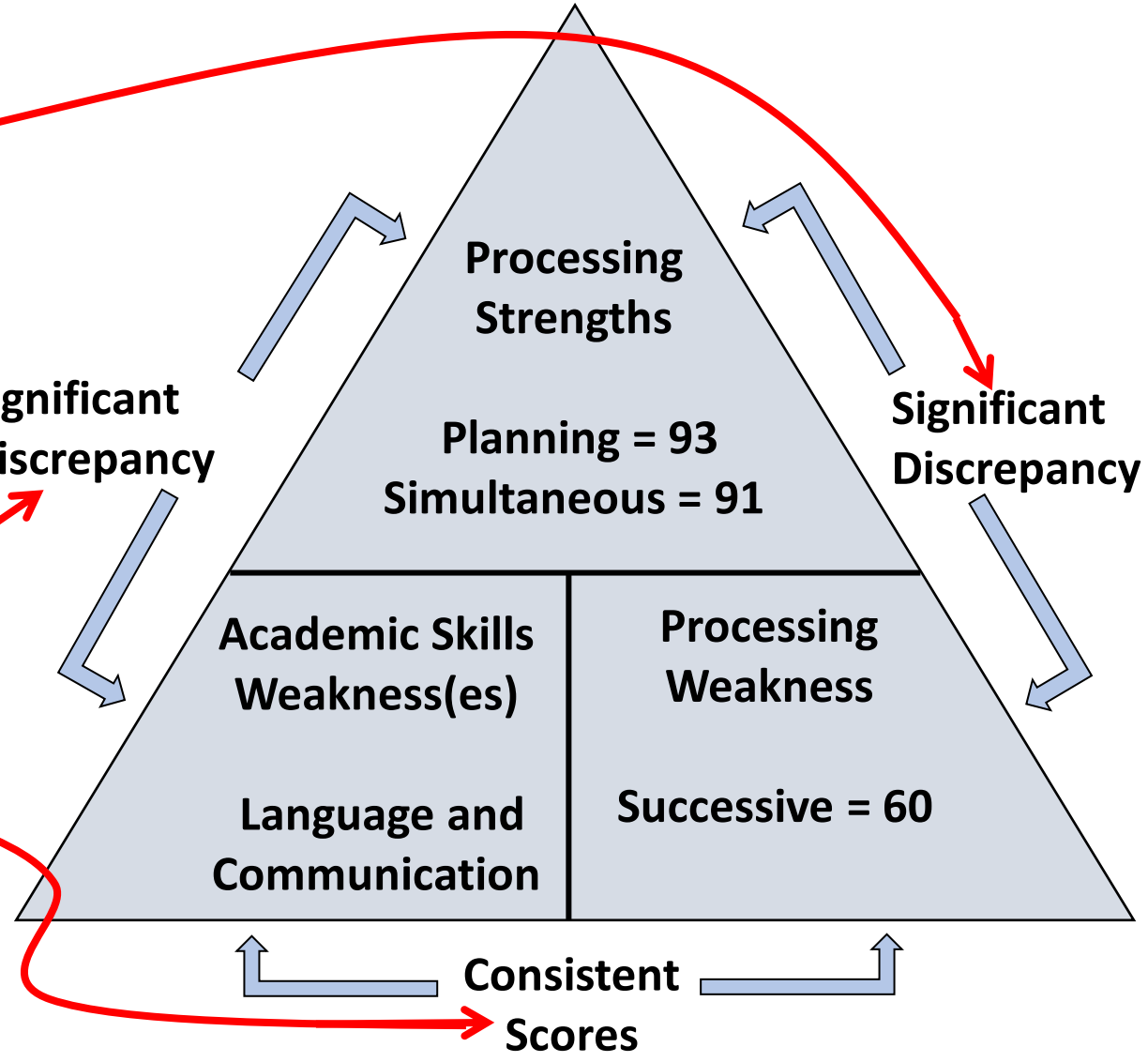
The Discrepancy Consistency Method (DCM) was first introduced in 1999 (most recently in 2017)



Discrepancy between high and low processing scores

Discrepancy between high processing and low achievement

Consistency between low processing and low achievement



Questions and Thoughts Please

Ideas to Consider

My Journey

Historical Context

Testing My Hypothesis About Intelligence Tests

PASS Theory and Measurement

Closing remarks

Intelligence Redefined

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